



THE EFFECTS OF TRADERS' COMPETITIVE RIVALRY ON LIVESTOCK MARKET
ACCESS IN PASTORAL AREAS: A CASE OF TURKANA COUNTY IN KENYA

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THE EFFECTS OF TRADERS' COMPETITIVE RIVALRY ON LIVESTOCK MARKET ACCESS IN PASTORAL AREAS: A CASE OF TURKANA COUNTY IN KENYA

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Abstract

THE EFFECTS OF TRADERS' COMPETITIVE RIVALRY ON LIVESTOCK MARKET ACCESS IN PASTORAL AREAS: A CASE OF TURKANA COUNTY IN KENYA

Francis Anno Ekiru

Unicaf University

The purpose of the study was to examine the effects of livestock traders' competitive rivalry on market access in pastoral areas. The study focused on how traders' socioeconomic characteristics, livestock production and marketing developments, market supply and demand relations, and business model incorporation into livestock commerce can generate knowledge and best practices for regulating competition and performance in local markets. The rationale for investigating competition and market access factors was based on the fact that livestock-keeping is a source of livelihood depended on by over 60% of the Turkana population. While the majority of livestock development challenges are production-related, competition and market access shortfalls make potential livestock markets inefficient and non-lucrative. Exploratory and descriptive research designs and a mixed-methods research approach were used to structure the study. Data was collected from study populations, i.e., primary market traders (n = 243), secondary market traders (n = 168), and livestock specialists working for government and civil society (n = 24). The chief findings showed that the competitive rivalry effect on livestock production and marketing and supply and demand relationships in markets is significant at a 5% level and that the socioeconomic status of livestock traders, including

their wealth, social standing, and amount of operating capital, varies greatly depending on traders' business capital. Livestock marketing in Turkana is not based on formal business models and strategies. The livestock industry is regressing, and many livestock markets are becoming inoperable, unprofitable, uncompetitive, and unsustainable. Knowledge generated on livestock production and marketing in pastoral areas for use by government and civil society in effective programming of livestock developments in pastoral areas is the basis for the study's critical implications for theory and practice. To structure, enhance performance, and regulate competition in livestock markets, the study underscores the importance of formulating and implementing business models and strategies leading to the most organized livestock marketing and networking among market stakeholders. The study's findings will guide the development of the livestock sector in drylands, facilitate the creation of value-added product chains for the market, manage pricing, structure market governance, and market support networks, improve trading modalities, and inculcate accountability and transparency values in livestock business endeavors.

Declaration

I declare that the thesis has been composed by myself and that the work has not been submitted for any other degree or professional qualification. I confirm that the work submitted is my own, except where work which has formed part of jointly-authored publications has been included. My contribution and those of the other authors to this work are explicitly indicated below. I confirm that appropriate credit has been given within this thesis where reference has been made to the work of others. Parts of this work have been published in:

Anno, E. F., & Pjero, B. E. (2021). Impact of Traders Competitive Rivalry on Supply and Demand Relations in Livestock Markets in the Drylands of Kenya. *International Journal of Business and Economics Research*. Vol. 10, No. 3, pp. 99-109. doi: 10.11648/j.ijber.20211003.13

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Dedication

This thesis is dedicated to all livestock producers and traders in the drylands of Kenya, Eastern Africa, and the African continent as a whole. It may serve as a tool to help people overcome historical and emerging barriers to livestock production and productivity in their localities, as well as to enhance market functionality, pastoral lifestyle viability, and the competitiveness of livestock-based businesses. Even now, many pastoral communities and households that depend on livestock and the environment for their survival still face severe food, income, and nutrition insecurity, as well as permanent poverty and underdevelopment.

The knowledge and pastoral development opportunities presented in this thesis are a contribution to overcoming obstacles impeding the performance of the livestock sector and industry in the drylands. May the ideas in this thesis bring about a long-awaited change in livestock production systems and in the way pastoralists perceive the world, allowing livestock keepers to maximize the value of their livelihoods through better livestock production practices and efficient livestock marketing systems and supporting the effectiveness of ways to make livestock-dependent populations more resilient, self-reliant, and risk averse.

To achieve these outcomes, pastoralists should not, as they have in the past, continue to use culture as a basis for decision-making regarding the use of their livestock resources and the environment. They need to critically see the opportunities that the market presents to them in this current dynamic and rapidly changing world!

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My late father, "Elder" Erastus Natukal Logiron (*Lokurere, ekone a' Kirien ka apa a'leleya*), was a wonderful man! When my family decided I should quit school at age 12 and become a goat herder, he defended me. I believe that he made the right decision by declining the family proposal. Even though he was uneducated, jobless, and had no money to pay for my education, he believed that education would be beneficial for my future after his passing. As a result of his noble decision, I was content in school, and I am now a professional, scholar, academic, and humanitarian worker! May his soul continue to rest in everlasting peace.

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My dear wife (Seline Anno – *Akimiet a' Kung'*) and my children stood by me throughout the entire doctoral program. For their encouragement and support, I humbly thank everyone not specifically acknowledged here. I would not have reached this academic milestone without their support!

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

This thesis is the result of independent research into the issue of competitive rivalry in pastoral livestock markets, with the goal of determining how extreme competition hinders market access opportunities in pastoral areas. Turkana County, Kenya, a larger and more complex pastoral region, is a case for study. The objectives of the study are to: characterize traders' competitiveness in markets; determine the impact of traders' competitive rivalry on livestock production and marketing; evaluate the impact of traders' competitive rivalry on livestock supply and demand relations; and assess the impact of locally applied business strategies and models on the competitiveness of livestock markets and traders.

In accordance with the aforementioned study objectives, the primary research questions formulated to guide the investigation of the study problem are: (i) What characteristics of livestock traders describe their market competitiveness? (ii) What is the influence of traders' competitive rivalry on livestock production and marketing? (iii) How does competitive rivalry between traders affect livestock supply and demand relationships in markets? (iv) How do locally applied business models and strategies affect the competitiveness of livestock markets and traders in pastoral areas? The research questions are strategic and exhaustive of the elements of the research study, which include the practice of competition and rivalry, market forces, stakeholders, and livestock entrepreneurs' behavior, and the organization of livestock marketing systems through the incorporation of theoretical foundations and efficient livestock business programming.

Livestock farming is critical to pastoral communities' livelihoods, social-cultural, and economic well-being, and significant contributions to state and regional economies (Ryschawy et al., 2017; Diawara et al., 2021). Improving traditional livestock farming practices, establishing a reliable livestock market economy, and influencing livestock development stakeholders' knowledge, skills, and attitudes are all avenues for transforming the pastoral economy and making it more sustainable. However, poor access to markets remains a significant threat to pastoralist regions' economies and people's ways of life, as found in Goldman (2015) and Mwangi, Ngigi, and Mulinge (2015). Pastoral regions are severely disadvantaged when it comes to livestock development, and traditional systems of livestock keeping leave them with only traditional husbandry practices and trade systems from which to derive benefits from their livestock and environmental resources.

The intensity of drought effects is also making national and local governments and regional organizations continue formulating and implementing policies and regulations aimed at improving the wellbeing of livestock-keeping populations (Shibia, 2018; Carabine, Jouanjean, and Tsui, 2015; Wambui et al., 2016). Limited conventional knowledge of livestock husbandry and marketing practices, long-term traditional livestock production and trade systems, ineffective environmental and land-use policies, marginalization of pastoralists and a lack of social and economic inclusion, weakened pastoral systems on mobility and the associated risks, a lack of vibrant livestock business strategies and models, and political and economic inefficiencies are some of the problems directly affecting agricultural initiatives and markets in the drylands (Kelly et al., 2016; Jones et al., 2015; Eguru et al., 2015).

In the majority of livestock markets in pastoral areas, inconsistencies in price discovery and setting approaches, a lack of coordination between marketing and sales strategies, a lack of understanding of the value of marketing systems by many herders and entrepreneurs across market categories, and the absence of adequate resources for producers and traders to sustain livestock marketing and livestock insurance costs further hinder the performance of livestock markets in pastoral areas (Fornari et al., 2016; Kariuki & Birner, 2015). The identified capacity gaps are exacerbated by the fact that the majority of rural residents are illiterate and unaware of their rights and entitlements. The cultural dictates have limited the scope and the pace at which pastoral communities can adopt and embrace change, which can enlighten and position them well to produce healthy and productive livestock resources as well as secure their space in markets within their reach.

Lack of market segmentation, limited commercialization of livestock production, limited capital resources for livestock production and marketing investments, and low trust in the quality of livestock and products from pastoral areas (Clark & Tilman, 2017; Anno & Pjero, 2021) retard livestock business efforts even in areas of good production and consumption potential. Civil society and governments are trying to address the identified gaps through a variety of strategies, including training and extension service provision, strengthening market structures and systems, leveraging technology for the growth of the livestock industry, and financing livestock development projects (Fernández-Giménez et al., 2015; Anno & Pjero, 2021).

The realization of change in every targeted aspect of pastoralists' development has been slow and inconsistent. In countries and regions where government policy is strongly focused on a paradigm shift in pastoral regions, significant gains for livestock

producers, entrepreneurs, and the government have been realized and sustained through the integration of the pastoral economy into the mainstream of the commercialized economy.

Pastoralism, the primary mode of production in dryland areas, can be improved by investing in pastoral resources such as land, water, and rangeland protection; facilitating livestock keepers' access to socio-economic services; promoting local value chains; and managing pastoral mobility challenges (Bonfoh et al., 2016; Nyariki & Amwata, 2019). Strengthening pastoralists' roles in the development of public policies, such as disease control and management, water and forage resource improvement, the upgrading of local livestock breeds, and the commercialization of traditional livestock production practices, would help pastoral areas and communities develop more rapidly and sustainably (Kagunyu et al., 2016; Egbe et al., 2016).

While pastoralism is largely regarded as traditional, conventional agriculture identifies it as a branch of agriculture suited for dryland land economies, and a lot of knowledge has been conventionally created for use. Pastoralism knowledge discoveries can only be put to use if they are intelligently disseminated to the target populations in a sustainable and cost-effective manner.

Market competition benefits everyone because it ensures consumer satisfaction and the provision of quality products (Ayele, 2019; Yiram et al., 2017). Through research, livestock markets would help businesses find and fix gaps in production, marketing, consumer satisfaction, and the enhanced ability for them to grow their businesses in a sustainable way (Abebe et al., 2018). Without competition, business environments lack innovation, product value addition, creativity, and the mode of business economy, which

encourages duplication and inconsistencies in sector and market growth. Healthy competition is of great importance to any production system that focuses on growth and expansion, the delight of consumer clientele, and the capabilities to realize market access.

With regards to the constant change and expansion of pastoral areas, competition is critical for increasing market awareness, lowering market prices, expanding product choices and business diversification, and improving consumer satisfaction (Kgosikoma & Malope, 2016; Fornari et al., 2016). Market competitiveness protects low-capital businesses by creating an environment in which they can grow and gain market share and by enabling markets to organize their marketing processes. From a microeconomic point of view, healthy competition makes livestock markets and products better, promotes market equilibrium between supply and demand forces, makes it easier to get into markets, and makes more information resources available and easier to find by market stakeholders (Yiram et al., 2017).

Pastoral communities' subsistence orientation markedly restricts the commercialization of livestock resources, which could be transformed by incorporating market intent as a goal for livestock keeping (Ameso et al., 2018; Kelly et al., 2016). Through research, to manage extreme market competition in markets, market structures and trade systems need to be improved and modernized, and institutional capacity development packages need to be standardized. Also, transportation of livestock and livestock resources to markets will be affordable, and current insecurity will be alleviated, resulting in a level playing field for livestock producers and traders to engage in the market (Stephen et al., 2018; Eguru et al., 2015).

It is well known that traditional trading systems such as barter had very little rivalry since the exchange of goods was not happening in a formal market setting. The deal to trade goods could take months as the parties keep engaging with each other. The current conventional trading systems limit the exchange of goods and services to specific market arenas. Factors and the fact that money is scarce and very limited, business entities have adopted mechanisms of trade, some of which are not ethical. This is how competitive rivalry sets in. Such behaviors are cropping up in livestock markets.

The reduction of trader cartels and brokers, the expansion of the cash economy and financial infrastructure for electronic payments, the establishment of cash savings and credit, and the conversion of livestock marketing associations (LMAs) into cooperatives are all high priorities for the transformation of dryland economies through livestock commercialization. This paradigm shift comes with costs in terms of investments.

The transformation of the pastoral livestock economy and systems and the creation of good opportunities and an enabling environment for the public and private sectors' engagement will open avenues for resource mobilization and stakeholder engagement that can facilitate programmatic approaches that would identify livestock development components and link them objectively to contribute to the cherished developments of the dryland areas. This achievement will improve the viability of pastoral regions and the economic endeavors of the natives and investors.

Integrating power relations, trust, and goodwill into livestock marketing will contribute to the development of the political capital necessary to ensure the long-term viability of livestock resources and entrepreneurial ventures (Dido, 2019; Shibru, 2017).

This will also assist in reversing market control measures such as long-time imposed quarantines and unauthorized access to certain prospective markets, as well as increase consumer preference and loyalty for locally produced livestock and livestock products. By addressing a wide array of livestock production challenges, market monopolies will become uncommon as the market becomes more open and democratic, allowing each investor to pursue their business goals (Lubungu, 2016; Addis, 2017).

By looking into how extreme competition affects the marketing of livestock in pastoral areas, stakeholders will acquire knowledge and skills that will help them solve problems that make it hard for producers, traders, and consumers to access the livestock market, as stated by Ameso et al. (2018) and Stephen et al. (2018). The achievement of a transformed livestock development agenda for drylands will facilitate the attainment of the envisioned functionality of livestock markets that are less prone to exploitation and abuse by stakeholders due to unhealthy competitive practices.

Turkana, like other pastoral regions in sub-Saharan Africa, suffers from multiple factors that have for a long time retarded the development of livestock-dependent communities. It is strategically thought that a focus on the transformation of markets and marketing systems will reinvigorate livestock production efforts and increase consumption of livestock-based products. Well-structured markets and systems of access would lead to the realization of the livestock subsector prospects and the socioeconomic transformation of producers, vendors, and consumers in the livestock development value chain.

1.2 Statement of the Problem

Without a doubt, the livestock business in the drylands is impaired by a variety of production, marketing, and structural issues with socioeconomic and political implications that greatly affect the efforts of livestock keepers to sustain their food security and business activities (Yuzaria & Rias, 2017; Hardstaff et al., 2015). However, for livestock marketing, a well-considered paradigm shift is lacking, which would facilitate livestock producers' access to markets and increase their competitiveness in the growing business industry (Little, 2015; Motta et al., 2017). This transition will not only affect how animals are sold but will also strengthen stakeholder alliances and coordination, enhance market functionality, and level the playing field for various types of livestock entrepreneurs and livestock markets, outcomes strongly emphasized in Ayele (2019), Ameso et al. (2018), and Shibia (2018).

Rivalry in livestock markets is causing a number of problems that make it harder for local traders to be competitive, make money, and stay in the livestock business (Abay et al., 2019; Sarkar, 2020). These problems threaten the unity of market stakeholders, put capital resources at risk, and limit the opportunities that come with traders working toward the same goal, as described in Hatab et al. (2019) and Kembe and Omondi (2016). Managing competition in markets is important for growing and expanding the livestock business agenda, diversifying business ventures, and teaching livestock producers and entrepreneurs about the value of their livestock resources and available business opportunities (Roba et al., 2019; Kassa et al., 2017).

Market penetration is an element that increases access to financial benefits, enhanced by the ability of local and external traders to conduct business cooperatively and with dignity in order to build a thriving livestock economy (Cheteni, 2019; Kariuki & Birner, 2015; Sala et al., 2020). The achievement of market capitalization is greatly hindered by extreme competition in livestock markets, which limits opportunities for strengthening the relationship between supply and demand market dynamics, essential for increasing livestock enterprise productivity, increasing sales and profitability for entrepreneurs, and ensuring the satisfaction of consumer needs and priorities, as recommended in Kihui et al. (2017) and Adem (2019).

Market stakeholders' morale determines their participation in markets, trading activities, and consumption of products (Awan et al., 2018; Ayele, 2019). Given how competitive livestock markets are now and how it affects the livestock economy as a whole in the area of study, Anno and Pjero (2021) and Kgosikoma and Malope (2016) argue that a lack of strategic business models and livestock marketing protocols leads to chaos in the marketing process and poor performance, which makes potential livestock markets useless.

While a good marketing system must be free of negative competition and other types of malpractice that could have a detrimental effect on market relations and product consumption, as presented in Dido (2019) and Berihun (2017), competitive rivalry in Turkana is openly instigated by traders themselves in their native markets, making them lose good economic opportunities that would otherwise speedily enhance the socioeconomic development of pastoralists through motivation to produce healthy and productive livestock that can trade well in various market segments.

The livestock market structure in Turkana is comprised of itinerant traders operating in livestock production areas; primary livestock traders operating at local markets in peri-urban areas managed by Livestock Marketing Associations (LMA); and secondary livestock traders operating at the main livestock markets in the county managed by both the LMA and the county's Livestock Marketing Council (CLMC); a livestock marketing strategy applied variedly in different pastoral regions of Eastern Africa as depicted in Berihun (2017); Nyariki and Amwata (2019); and Mwangi, Ngigi, and Mulinge (2015).

The livestock marketing framework in Turkana illustrates the cherished upward movement of animal resources in the market chain. However, extreme competition has resulted in the emergence of britches in livestock marketing practices, which disorients the perceived upward flow of livestock and products and is caused by traders taking advantage of market opportunities at the expense of other stakeholders and market development by indulging in unhealthy competitive practices. While such market challenges are observable in Turkana, they are also affecting market access in many livestock-keeping areas in the Eastern Africa region and Sub-Saharan Africa as a whole (Shibru, 2017; Fakudze & Machethe, 2015; Cheteni & Mokhele, 2019).

Conflicts of interest, mismanagement of business startups, high illiteracy among livestock producers and traders in drylands, exploitative tendencies, a lack of policy and law governing the management of local markets and marketing activities, and per capita issues, particularly during periods of reduced livestock supply in markets, all contribute to the negative market outcomes in pastoral areas (Omollo et al., 2017; Hatab et al., 2019).

Livestock producers, entrepreneurs, and markets have all borne financial costs as a result of the negative competitive environment. Unorganized trade between market stakeholders makes it impossible for them to make the most money in their own markets and messes up the supply and distribution chains for livestock, as evidenced in Nyariki and Amwata (2019) and Ameso et al. (2018).

Secondary traders Purchases of animals from producing areas are not only a means of livestock auction and offtake but also a means of relegating itinerant and primary traders to subordinate status, robbing them of their self-esteem and sense of legitimacy as livestock traders. Competitive rivalry and insufficient coordination of livestock trading result in gains that are not proportionately shared when standardized marketing procedures such as price markups are used. This is a common tactic used by trade cartels to establish a monopoly in Turkana's livestock marketing protocol, as done in markets in Ethiopia and Somalia (Berihun, 2017; Abay et al., 2019; Dido, 2019).

Extreme competition is impeding local traders' ability to access additional potential markets within Kenya and across the border into neighboring Uganda, South Sudan, and Ethiopia. Individualistic and exploitative trading habits won't help local traders and markets gain the competitive and comparative advantages they need to contend in local and international markets and become profitable and sustainable, as emphasized in Vrankić and Krpan (2017); Roba et al. (2019); Too et al. (2015); and Napp et al. (2018).

The solution to Turkana's livestock market rivalries is highly dependent on a well-designed and implemented livestock marketing system that demonstrates a business model aimed at organizing marketing activity, uniting and coordinating market stakeholders, instilling healthy competition, and facilitating smooth market access, as

recommended in Tilahun et al. (2017) and Kgosikoma and Malope (2016). Additionally, programs aimed at transforming the livestock sector can contribute to healthy competition and the utmost functionality of livestock markets, as found in Fornari et al. (2016) and Clarke and Tilman (2017). The livestock sector transformation action includes modernizing marketing infrastructure, integrating and using information technology, making sure that all market activities are ethical, setting up checks and balances to ensure accountability and transparency, and the change management capabilities stated in Chiteni (2019) and Kembe and Omondi (2016).

Concentrating on competition management will restore sanity to Turkana's livestock markets and increase stakeholder confidence in livestock business practices, as is the case in Ethiopia's regional markets (Bachewe et al., 2018); Botswana's beef export market (Kgosikoma & Malaope, 2016); and Mbatha's (2021) on protecting emerging rural livestock traders. A holistic marketing approach that curtails the current trend toward negative competitive rivalry will serve as an excellent guide for the practice of healthy market competition, a strategy used to organize livestock marketing activities in rural areas of Ethiopia (Berihun, 2017; Dido, 2019).

The management of the competitive rivalry challenge in livestock markets will also ensure that consumer satisfaction is achieved and business ethics are promoted across all market segments, facilitating easy, viable, and long-term market access. Using the success stories contained in Kelly et al. (2016), Stephen et al. (2018), and Clark and Tilman (2017), reducing negative rivalry in livestock markets and further developing market-demanded product value chains will benefit the pastoral economy and entrepreneurship agenda, which are critical for livestock markets' success. Without this

research, the economy of pastoralists will continue to be traditionally governed, disorganized, and not appealing to investors who are interested in certain parts of the livestock value chain. Food, income, and nutrition insecurity, as well as underdevelopment, will continue to define the living conditions of pastoral communities that raise livestock.

1.3 Purpose of the Study

The purpose of this mixed method study is to establish how extreme competition in livestock markets in pastoral areas hinders market access and opportunities, specifically in Turkana, through examining critical aspects of competition, which include socioeconomic characteristics of livestock producers and traders; traders' competitiveness in markets; supply and demand relationships in markets; and depicting the role of business strategies and models in livestock production and marketing. As a felt necessity in pastoral areas, extreme competition in livestock markets is a problem that needs to be fixed so every market stakeholder can operate on a level playing field and more people can take advantage of domestic and international market opportunities to sell livestock and diversity of products.

Turkana is largely a pastoral region where about 70 percent of the population depends on livestock for food, nutrition, income, and diversification of livelihoods. Human development indicators in the region are extremely low, demonstrating why the reunderdeveloped region and its people are food insecure. The livestock economy is the main economic option that can be sustained even during dry periods, as drought-coping mechanisms have improved relations among pastoral communities in neighboring pastoral communities in Uganda, Kenya, South Sudan, and Ethiopia, allowing Turkana pastoralists to gain access to better pasture and water.

This background calls for development and contingency plans to leverage the livestock economy, the viability of pastoralist communities' ways of life, and the pivotal role that livestock play in the wellbeing of pastoral households and the economy of dryland areas.

Individuals, such as livestock producers, are harmed by the problem of competitive rivalry because it prevents them from realizing the true value of their livestock resources in markets, particularly small-capital traders, who are exploited and outcompeted even in their native marketplaces. Due to the high costs associated with operating a business as a result of the imbalance between supply and demand market dynamics, the study problem also affects the performance of organizations involved in livestock marketing, such as livestock producers, vendors, processors, and diners. The livestock economy, the people who work in the livestock sector, and the growth of pastoral areas are all greatly affected by the fierce competition.

Market performance challenges are a hindrance to livestock commercialization in Turkana and other pastoral contexts where livestock is the primary source of livelihood, discouraging livestock producers and traders from committing their business capital resources. Identifying the impact of competitive rivalry on the market and stakeholders enables the development of strategies that improve the organization of marketing activities that inculcate healthy competition and good governance in livestock markets.

Examining the research topic, study objectives, strategic research questions, and field-level research processes involving research participants will generate critical findings, implications, and recommendations that can inform the livestock market's structure and systems critical for making livestock markets in pastoral areas vibrant, high yielding, and sustainable.

1.4 Nature of the Study

Competitive rivalry in livestock markets is a problem that requires further investigation to ascertain the causes and effects on livestock commercialization and the livelihoods of livestock-dependent populations. Because livestock marketing and market management are carried out by humans, a descriptive research methodology was chosen. A mixed-methods approach was used to investigate the study problem both quantitatively and qualitatively. Due to the critical nature of capturing human behavior and facts about social phenomena, it was necessary to collect data from participants and measure reality in them, to collect information on study objectives for statistical analysis and inference, and to report the research data in the respondents' language.

The research was conducted in Turkana County, Kenya, in nine (9) primary and three (3) secondary markets, with a total sample size of 411 people (primary and secondary market traders) and 24 tertiary study participants drawn from civil society and government departments. The whole study process lasted two years (May 2020–December 2021), and every aspect of the research design and process was fully implemented. The main way to get primary data was to ask traders on the primary and secondary markets, as well as members of civil society and government policymakers, who made up the tertiary respondent group.

The researcher consulted relevant literature sources to obtain secondary data. This investigation was conducted in accordance with established research ethics guidelines approved by Unicaf University. The researcher was confident in conducting the investigations after receiving approvals for the research study from both the Kenyan Government's National Commission for Higher Education and Turkana County's

Directorate of Livestock Production. The researcher consulted relevant literature sources to obtain secondary data. This investigation was conducted in accordance with established research ethics guidelines approved by Unicaf University. The researcher was confident in conducting the investigations after receiving approvals for the research study from both the Kenyan Government's National Commission for Higher Education and Turkana County's Directorate of Livestock Production.

The triangulation and validation of data collected using various research tools and methods took place through stakeholder workshops attended by government officials, representatives from civil society organizations, and livestock producers and traders in Turkana. Stakeholders concurred that the study's findings accurately reflected the actual state of the phenomenon under study, with positive implications for livestock production, marketing, and policy direction for livestock development and the welfare of livestock-dependent populations, their means of livelihood, and the viability of the environment.

1.5 Significance of the Study

Studying the level of competition in livestock markets and how that affects access to and utilization of market opportunities in pastoral areas is a smart move not only for getting livestock producers and traders actively involved in the livestock trade but also for setting up good marketing systems and standards for the livestock trade in pastoral areas.

The study defines the demographic characteristics of stakeholders in the livestock trade, their business capacities, and the opportunities available in each market jurisdiction. The findings of the study will aid in the development of regulatory guidelines for livestock marketing operations as well as competition management. This will result in the development of methods for removing livestock marketing impediments that hamper the expansion of livestock sector initiatives, trade investments, and the realization of socio-economic benefits for livestock keeping groups and merchants.

The study's findings will influence how livestock sellers compete for market share in various market segments. It will eliminate duplication of livestock-related businesses, positively influence trader attitudes and market trust, and promote cooperation and excellent trade relations between livestock producers and traders. Northern Kenya's livestock trade has a lot of potential, as many of the residents are pastoralists who keep livestock in large numbers. The establishment of links between livestock production areas and markets will aid in balancing the amount of livestock available for sale with the market's capacity to absorb them.

The current production, marketing, and structurally related market efficiencies will be addressed, including the quality of livestock and livestock products, marketing approaches, and the physical structure of market arenas. As well, the study's output

serves to strengthen relationships among livestock industry stakeholders by encouraging collaboration and networking across market segments. Turkana livestock business owners will find current and future market opportunities by using well-mapped livestock production zones and working livestock markets.

The research output will assist livestock-based goods and service enterprises in developing according to market preferences and needs, monetizing existing customers and consumers, and reinforcing market orientations that are critical for market performance and consumer satisfaction. The study will make it possible to make a map of the people who work in the livestock sector, their specialties, operational scope, roles, and interests, as well as to set up progress indicators for reaching the marketing goals for livestock.

The study's findings will suggest potential policy areas and their implications for the organization and regulation of livestock markets. This focus area will enhance livestock development programs and enable stakeholders in the livestock industry to have a greater impact on market competitiveness, profitability, market growth, and livestock-based enterprises' sustainability. This is important because a structured and organized plan for marketing livestock lets entrepreneurs make and sell livestock products that are competitive and in high demand.

The study's findings will reinforce the role of the livestock market in reducing the extreme poverty that currently afflicts livestock-keeping communities in rural and peri-urban areas of Turkana and similar contexts in Kenya. It will advance fairness, equity, and equality in livestock markets and businesses by making it easier for entrepreneurs,

regardless of their capital base, women, and youth to feel empowered to fully participate in the growth of their native livestock markets and enterprises.

Through the study, livestock industry stakeholders will contribute significantly to the market's and daily operations' success. Also, the results of the study will be used to create risk-averse business procedures that will help livestock producers and traders reduce the negative effects of uncertainty on livestock production and trade. This will give livestock businesses a consistent way of doing business that is acceptable to all stakeholders.

As outlined in the Turkana County Integrated Development Plan (CIDP II: 2018–2022), the agriculture and livestock sectors of the Turkana economy are regarded as critical for addressing food and income insecurity, which currently affects approximately 70% of the population. As a result, the Turkana County Government (TCG) will improve sector plans and the effectiveness of flagship livestock production and marketing projects.

The study output will also strengthen county government livestock emergency response actions. The study's findings will also help to increase the viability of livestock sector decisions made and implemented by the Turkana County Directorate of Livestock Production (TCDLP) and the County Ministry of Trade. Such possibilities will give people in Kenya and Eastern Africa's pastoral regions a new push to get the public and private sectors to work together on projects for livestock production and marketing that are driven by policy and to set up and use effective livestock business models in pastoral areas.

The study is extremely important for national government livestock marketing programs and the strategic intentions of livestock development programs like the Turkana County-USAID Feed the Future Livestock Marketing Systems (LMS) program. Also, the

results of the study will help the International Livestock Research Institute (ILRI) and the Food and Agriculture Organization of the United Nations (FAO) improve their emergency and development strategies for livestock to help rural communities get out of poverty and end hunger.

The African Union Inter-African Bureau of Animal Resources (AU-IBAR) and the Intergovernmental Authority on Development (IGAD) will use the study's findings and recommendations to improve livestock projects in the greater Karamoja cluster region, which includes the Turkana region of Kenya, the Toposa region of south eastern South Sudan, the Karamoja sub-region of Uganda, and the Nyangatom pastoral region of south Omo, Ethiopia, as well as the greater Horn of Africa.

By utilizing the study findings and recommendations as the foundation for transforming the pastoral economy, a collaboration between the County Livestock Marketing Council (CLMC), which manages secondary livestock markets, and Livestock Marketing Associations (LMAs), which manage livestock marketing operations at primary and secondary markets and production areas, will facilitate stakeholder action mapping, labor division and specialization, and strategic positioning of livestock resources across markets and consumption points.

The study will assist the Turkana County Livestock Marketing Council (CLMC) in determining the expected productivity and competitiveness of livestock sector resources in the county and adjacent internal and cross-border areas. As a result, livestock marketing programs geared toward the commercialization of livestock would contribute to resolving contentious areas in livestock production, marketing, distribution, and consumption of products, as well as policy and practice, all of which are critical pillars of

market access. This possibility will also get the public and private sectors working together again on projects and business models for livestock production and marketing that are driven by policy in Kenya's pastoral areas and all over Eastern Africa.

The study has colossal implications for Kenya's national government's livestock marketing programs and the Turkana County Livestock Development Portfolio. The Kenya National Chamber of Commerce - Turkana Chapter will use the study's findings to strengthen its development strategy for livestock markets and entrepreneurship in Turkana. Non-governmental and corporate sector organizations promoting the growth of the private sector and livelihoods in Turkana's sub-counties will strengthen their food security strategies, which are critical to the socio-economic development of livestock keepers, traders, and consumers of livestock products.

Academic institutions, scholars, civil society organizations (CSOs), and national and county government ministries and departments will validate, improve, and strengthen the studies done in Turkana County to include current and future scenarios of livestock production and marketing in drylands. The important parts of the livestock value chain, like market stakeholders, market arenas, abattoirs, meat processing plants, hides and skins aggregation units, tanneries, and livestock feed mobilization units, will use the research findings, recommendations, and key areas for future research to improve their business prospects and strategies.

The effects of climate change manifestations on the pastoral economy, such as drought, disease, pastoral mobility challenges, seasonality of markets, cultural influences, a cash-based economy, and a lack of technological innovation, will be mitigated by the resilience strategies proposed in the study to assist pastoralists in coping with the

challenges associated with each impediment. Numerous studies conducted in Kenya's drylands emphasize the critical importance of investing resources to protect pastoralists and their livelihoods from the growing effects of climate change and desertification. The study's results will add to what is already known about how climate change affects agriculture and the loss of natural resources for rearing livestock, which can be lessened by giving communities more power to conserve and protect the environment.

The study's output will strengthen programming on climate change management by increasing pastoralists' awareness of the phenomena and developing coping mechanisms that will maximize livestock, land, and human resilience to drought and associated hazards. Stakeholders will help pastoralists gain a better understanding of rangeland issues such as land carrying capacity, forage Dry Matter (DM) ratios, climate change adaptation strategies, holistic natural resource management (HNRM), and help livestock keepers embrace alternative livestock feed systems.

While the study is primarily concerned with competition management, it has far-reaching implications for the entire livestock production and marketing processes in Turkana, as well as the applicability of the study's output to similar and related pastoral production ecosystems. Managing competition, stakeholder relations, and rational consumer behavior can all have a positive effect on the organization and functionality of markets, resulting in increased sales of livestock and livestock products and revenue streams.

The crafted livestock marketing strategies and models developed as a result of this study will be applied to all market categories in Turkana to help organize and structure the approach to livestock marketing and support the maximization of livestock-based

economic opportunities. The strategies will enhance learning among livestock marketing stakeholders towards the development of a livestock marketing system for the Turkana context. The results of the study will also help Turkana County's quality assurance and monitoring and evaluation (M&E) technical unit because they will make it possible to create livestock marketing performance indicators for the county's web-based agricultural monitoring and evaluation (M&E) framework, which was built with money from the United Nations Food and Agriculture Organization (UN FAO).

Without this research, the majority of the Turkana region's livestock economy will remain traditional, with a pastoral economic system based on sociocultural practices preventing the anticipated commercialization of livestock farming in many drylands of Kenya and Sub-Saharan Africa as a whole. Fundamental barriers to livestock marketing will continue to erode Turkana's pastoral economy's potential. Pastoral regions are likely to remain impoverished, marginalized, and underdeveloped over a long period of time.

Insecurity regarding food, income, and nutrition will continue to define people's way of life. Moreso, wealthy business cartels, monopolists, and informed traders from secondary and tertiary markets will continue to dominate existing markets, resulting in livestock producers and low-capital traders incurring losses and being unable to compete in any market environment. When the problem of negative competitive rivalry in livestock markets and marketing activities is solved, the livestock marketing system in Turkana will be defined, structured, organized, coordinated by stakeholders, and well-governed. This will make it easier for people to get to markets and connect with people locally and across borders.

CHAPTER 2: LITERATURE REVIEW

The second chapter contains five sections. The first section is a technical summary of the knowledge contained in the scholarly publications regarding the global, regional, and national status of livestock development in drylands in Africa and Kenya. In the second section, the author presents what other scholars have said about interventions in livestock production, marketing, and global challenges facing the livestock sector.

The second section describes how healthy livestock and livestock products are produced for food security and markets. It also captures the challenges affecting the quality and quantity of livestock-based resources, including the climate change phenomenon and its effects on the growth of livestock in different production environments, as well as how it alters livestock production and marketing practices in states and regions. Part three of the literature review chapter presents knowledge on livestock marketing interventions and livelihoods, including livestock marketing programs, local challenges, opportunities, and case studies within the context of the pastoral region of Turkana.

Part four gives a theoretical framework for how the author developed the livestock business models and strategies that can be used to structure livestock production and marketing, improve market functionality, competitiveness, and stakeholder engagement, make market access easier, and make the most of trade opportunities. The fifth section is a summary of the literature reviewed and a synthesis of the literature's findings regarding the study problem, objectives, and anticipated development. It gives important information for guiding the research process and confirming and triangulating the results of the study.

2.1 Livestock Development in Africa, and Kenya

2.1.1 A Perspective of the Livestock Industry

Agriculture is a global resource for developing and developed economies. Africa adopts and facilitates livestock production systems based on the needs of livestock-keeping communities and market opportunities (Asante et al., 2016; Aden, 2019). The livestock industry in Africa is very active and changes quickly, but it is hard to plan for because it is hard to estimate annual offtakes, livestock productivity, and market consumption.

According to Wambui et al. (2016) and FAO (2016), some countries and regions have neglected the livestock sector due to increasing production costs, deteriorating factors of production, and countries' agriculture policy inclinations. Both studies also state that African livestock exports are also slowed down by problems with quality control, changes in prices, and disease outbreaks, all of which have huge economic effects on the sector and development.

Illegal livestock trading, as per arguments in Little (2015) and Berihun (2017), devalues foreign exchange and exacerbates broken marketing systems in Africa, undermining trust in the livestock and value chains traded. Bitetti (2019) and Bocken (2017) also identify that a lack of entrepreneurial awareness, a lack of linking production to market needs, an inability to maximize market gains, a lack of genetic improvement, and the differentiation of local livestock breeds defeat the purpose of commercialized livestock production systems. Because of this, Ebel (2016) said that the problems with livestock development were caused by less money and budgets from the government,

especially in the developing world. This made it hard to produce and sell livestock in a way that was sustainable and competitive.

2.1.2 Livestock and the Economy of the African Continent

Livestock farming is vital to the African economy. In Africa, the livestock sector accounts for 20–50% of value-added agriculture (Ihle et al., 2017). Almost two-thirds of rural African households own livestock. In Botswana, livestock contributes up to 80% of agriculture's GDP, an indicator that African livestock markets could provide lucrative business opportunities (Taban et al., 2018; Henderson et al., 2015). In order to invest in the livestock sector, you need to know how the market drives the demand for livestock products. As IGAD (2017) and FAO (2016) point out, livestock not only provide savings and insurance but also manure, animal power, and transportation.

Meat, milk, eggs, hides and skins, and live animal markets provide over 90% of livestock keepers' income in sub-Saharan Africa (Givens, 2018). Nevertheless, half of all African livestock-keeping households earn less than 10% of their income from livestock (Cheruiyot, 2019). Livestock accounts for 53% of agricultural stock and 30% of agricultural GDP in Africa. Dryland farmers in Africa lack access to livestock inputs, financing, and markets.

Due to a lack of specialization, as argued in Osei-Amponsah (2020), many African entrepreneurs trade similar livestock species and products in the same markets. This leads to duplicate businesses being delivered in an extremely competitive business environment, which makes it hard for markets to grow and for people to access them.

2.1.3 Livestock Sector in the Eastern Africa Region

Pastoral, agro-pastoral, nomadic, and sedentary livestock-dependent communities are the chief producers of livestock in eastern Africa, and the roles played by livestock and non-pastoral commodity markets are all equally important for the economies of eastern African countries, regions, and communities (Nyariki & Amwata, 2019). This outcome is facilitated by economic incentives and policy frameworks designed for rural development and market capitalization. Unfortunately, according to the findings in Dido (2019) and Bonfoh et al. (2016), the implementation of most of the rural development policies for eastern Africa is constrained by a lack of adequate funding to achieve the set goals. Because of this, traders in eastern Africa have a hard time getting to markets and businesses that depend on livestock.

Large tracts of land used to keep livestock are a precious production resource hobbled by increasing urbanization, changing land-use priorities, and land-grab tendencies. (Abay et al., 2019; Awan et al., 2018) Many countries haven't been able to meet their national livestock production goals, even though their governments have spent a lot of money on livestock. This has caused established industries to stop working.

Kenyan livestock production is complex and is influenced by social, economic, political, and environmental factors. About 12% of the national GDP, or \$4.5 billion, comes from the livestock sector. This number could go up if the production and productivity of livestock, the marketing of live animals, and the diversification of product value chains in eastern Africa for markets were consistent and improved.

2.1.4 The Livestock Sector in Kenya's Drylands

Kenya's land is 80% arid or semi-arid. In 2020, there were 21.7 million cattle, 36 million goats, 25.3 million sheep, 3.34 million camels, and 1.8 million donkeys. Around 60% of livestock is found in arid and semi-arid areas. According to Ojango et al. (2017) and Karneback et al. (2015), rangelands and communal production resources in drylands and pastoral areas are essential for large-scale livestock production.

The traditional economy of livestock production in Kenya's pastoral areas is still influenced by sociocultural factors and is highly dictated by pastoralism, which is the philosophy of life of the pastoral communities (Wanyoike et al., 2018). Intensive livestock production is ideal for commercial farming with a high animal density per unit area. Analysis by Tilahun et al. (2017) and Ogutu et al. (2016) shows that climate change and changes in the seasons, as well as the slow adoption of intensive and semi-intensive livestock-keeping systems, make it hard to use intensive farming systems.

Livestock health is a concern for livestock production and marketing due to diseases spreading when animals congregate in grazing fields, watering points, and markets (Abraham et al., 2018; Mdladla et al., 2017). During times of prolonged droughts, pastoralists opt to migrate as a means of keeping their livestock alive and productive, as well as maintaining households' livelihoods (Shibia, 2018; Wambui et al., 2016). Pastoralism, a traditional and mobile livestock farming system, is extremely valuable in Kenya as a production system that involves people, animals, and the environment.

The protection of pastoral community land rights is still an issue, as policies have not been formulated. According to Ameso et al. (2018) and Stephen et al. (2018), pastoralism is a risky production system due to its mobility, feed, and water scarcity.

Kenya's National Livestock Policy (2019) encourages community ranching. Abdalla et al. (2018) and Njiru (2017) found that the ranching system has made marginal land useful and productive for livestock. It has also been shown to be more organized and safe because it doesn't have the problems that pastoralism exhibits.

2.1.5 The Performance of Kenya's Livestock Markets

Kenya's livestock markets are increasingly being flooded with livestock, reducing demand and threatening market performance (Nyariki & Amwata, 2019; Kagunyu et al., 2016). Poorly developed livestock distribution systems allow intermediaries to profit from market conditions. Seasonality in livestock production and marketing causes market surpluses and deficits. Such impediments retard the transformation of livestock production in Kenya (Anno & Pjero, 2021; Roba et al., 2019).

Other studies undertaken in Kenya showing the state and performance of livestock markets are Isako et al. (2019) and Shabana and Matanda (2019). The studies also show that the effects of multiple challenges have a big impact on production and marketing efforts. They also give clear recommendations on how to use every part of the livestock sector in dryland areas to get the most out of the market.

Among the critical areas encompassed in the research studies in drylands are animal health, production, marketing, trade routes, climate change, and poverty among the livestock-keeping populations. Other areas regularly researched are local and cross-border livestock trade dynamics, pastoral resource-based conflicts, and cross-border livestock trade incentives, which are essential elements for the livestock sector to be achieved through policy, strategic knowledge sets, and good practices, as per assertions in Roba et al. (2019) and Motta et al. (2017).

The low application of technology in shaping livestock marketing systems is due to the lack of awareness and literacy levels of livestock producers and entrepreneurs (Pereira, 2019; Butt, 2015). Kenya's National Livestock Policy also aims to make sure that livestock farming can continue for a long time by making the most of opportunities to help with efficient livestock production, breeding, research and extension, marketing management, and building the capacity of institutions.

2.2 Livestock Production Interventions and Outcomes

Livestock keeping is a critical economic activity for states and regions in the world's arid and semi-arid regions (Shibru, 2017; Feliciano, 2019; Fraval et al., 2018). According to a study by Simonet and Carabine on stabilizing dryland economies through livestock development and a study by Kinyua on giving smallholder livestock farmers the tools they need to run healthy and productive livestock businesses, keeping livestock is important for food and income security and as a source of capital for a diverse economy.

Despite the risks inherent in drylands, Fraval et al. (2018)'s work on integrating urban and rural areas emphasizes the need for dryland economies to be strengthened. Nyariki et al. (2017) show how important it is to use mixed farming practices and technologies in the drylands. Ogola et al. (2018) also strongly recommend this as a way to make sure that people living in hard-to-feed areas have food all year.

According to Diawara et al. (2021), de Glanville et al. (2020), and Thebaud (2017), understanding livestock production in Africa requires considering animals as assets, a store of wealth for resilience, and a factor of production in mixed farming. Semango et al. (2019) and Taban and Cirik (2018) findings on possible improvements in livestock sector programs correspond to those in Feliciano (2019), Thebaud (2017), and Ongoma et al.

(2018) in affirming the possibility of increasing livestock production resources through strategic investments. Shibru (2017) says that animal-based foods and income are easier to get because of livestock production and associated business opportunities.

Ethiopia has the continent's largest livestock population, i.e., 65 million livestock, including 40 million sheep, 51 million goats, 8 million camels, and 49 million chickens, despite Africa's livestock production challenges (Shibru, 2017; Wynants et al., 2019; Nyariki et al., 2017; Berihun, 2017). It brings in 40% of agricultural GDP, 18% of total GDP, and 19% of foreign exchange earnings, which improves household income, ensures food security, and advances the socioeconomic standing of livestock dependent communities (Berihun, 2017, de Glanville et al., 2020).

Findings in Berihun (2017), Ogola et al. (2018), and Diawara et al. (2017) research studies with a focus on empowering pastoral livestock production systems demonstrate that in countries like Ethiopia and Botswana, livestock production achievements reveal that government policies on livestock production and pastoralism have been significant in promoting not only livestock-keeping activities but also trade and investment. In the same countries, breeds of livestock are kept in a variety of settings while taking advantage of different climatic zones with improved technology application and continued government support to livestock-producing communities (Melesse & Cecchi, 2017; de Glanville et al., 2020; Herzog et al., 2019).

In areas with limited livestock production resources, livestock keepers employ nomadic livestock management and mobility techniques (Simonet et al., 2020; Shibru, 2017; Taban and Cikir, 2018). Many arid-land households continue to rely on small-scale

peri-urban and urban agriculture as well as medium to large-scale commercial animal agriculture (Nyariki et al., 2017).

According to Goldman et al. (2015) and Simonet and Carabine (2021), women are typically in charge of feeding animals, cleaning barns, milking, processing milk, and marketing livestock products. Semango et al. (2019) and Feliciano (2019) say that this obligation is one of the most important things women do to improve food security and get rid of poverty, even though it takes a long time for women to be included in the ownership of wealth and decision-making in households, communities, and even at the national level in most developing economies.

2.2.1 Livestock Feeds and Feeding Systems

Feed is an essential component of producing healthy, productive, marketable, and competitive livestock and products (Mureithi et al., 2015; Muricho et al., 2019). Amistu et al. (2017) and IGAD (2017) agree that improving livestock feed resources through good production, conservation, and preservation will help maintain livestock productivity in pastoral areas throughout the year.

The findings of de Glanville et al. (2020) on the characterization of livestock production systems using the case of Northern Tanzania, Diawara et al. (2017) on the viability of pastoral production in West Africa's Sahel regions, and Berhe et al. (2016) on the importance of livestock producers' strategies on managing livestock feeds show that there are many ways to improve the viability of pastoral rangelands and the availability of different livestock feeds for different uses.

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It is also presented in Hidosa and Tesfaye's (2018) study on livestock feed availability and production constraints in Ethiopian rangelands in comparison to other pastoral ecosystems in Eastern and Western Africa that the nutritional characteristics of livestock fodder species are deteriorating gradually due to a lack of rain, overgrazing, few reseeded programs, and environmental stress. This is related to the results of the Alemayehu et al. (2017) review study on major feed resources in eastern Africa and the Wasonga et al. (2016) study on the importance of vegetative resources for livestock production and productivity.

Both of these studies show that many rangeland ecosystems in Africa are losing biodiversity that is important for livestock production, and some of the most important ones have lost it completely. As a result, there are fewer types of forage for livestock, and they don't get enough to meet their nutritional requirements.

Deribe (2015) and Mwaura et al. (2015) both say that the economic viability of livestock feed production and formulation interventions is important for livestock keepers in the drylands to protect their animals from shocks, increase their productivity, and provide food security for pastoralist communities through continued access to markets.

Wairore et al. (2015), Wasonga et al. (2016), and Omollo et al. (2017) discuss the impact of climatic variability on forage varieties, quantities, and quality; landholding; pastoral land reduction; fodder trees and pasture enclosures; and rangeland viability as determinants of efficient management of livestock forage resources. Shibus (2017), Wasonga et al. (2016), and Hidosa and Tesfaye (2018) all say that long droughts and famines, which are common in sub-saharan Africa, make problems associated with inadequate livestock feeding worse.

2.2.2 Artificial Pasture Growing and Livestock Feed Formulation

It is presented in Gebremedhin et al. (2017) and Hassan et al. (2020) that due to livestock production challenges, livestock-keeping communities have been able to adopt artificial pasture growing, hay production, fodder tree cultivation, and the formulation of concentrates for livestock feed supplementation. According to Amistu et al. (2017), Sefa (2017), and Ochago et al. (2017), drought, lack of water and feed, lack of knowledge, wildfires, and unorganized grazing systems are some of the biggest problems that make it hard for livestock producers to grow and manage feed for their animals.

Berhe et al. (2016) and Mwaura et al. (2015) argue that such barriers can be overcome through a sound policy framework, technological investments, research, and a pro-innovation attitude. Gebremedhin et al. (2015) and Omollo et al. (2016) come to the same conclusions: access to productive land, water availability, drought-tolerant pasture seeds, business capital, and ways to get around all affect how livestock producers participate in fodder production and marketing.

As said by Ochago et al. (2017), household wealth, peaceful coexistence, and organized grazing systems are essential for promoting stakeholder participation in fodder production, conservation, and marketing initiatives. Artificial pasture production and commercialization via government, civil society, and community programs are described in Sefa (2017) and Alemaheyu et al. (2017) to protect massive numbers of animals during severe droughts.

According to Hassan et al. (2020), Deribe (2015), and Muricho et al. (2019), additional interventions that increase the productivity of diminishing grazing areas include reseedling and retreating grazing areas, implementing various grazing strategies, and implementing holistic natural resource management (HNRM). Animal feed resources will last longer in the field and in storage if they are treated and protected from bad weather (Shibru, 2017; Amistu et al., 2017; Emana et al., 2017).

Feed insecurity as a result of prolonged and recurrent droughts continues to be a persistent impediment to livestock production and a major source of resource-based conflict in the drylands of many developing countries, including Kenya (Biddle & Schafft, 2015; Nyariki et al., 2017; Mwaura et al., 2015). According to what Jolliffe and Prydz (2016) and Shibru (2017) found, weather and market information, land tenure systems, shock exposure, off-farm income, age, gender, and proximity to towns all affect the ability of livestock and fodder producers to make money from markets.

As argued by Gebremedhin et al. (2015) and IGAD (2017), pastoralists' access to requisite institutional support services for fodder and livestock markets, as well as their integration into the broader market economy, are emphasized as critical for their integration into the livestock resource market economy. Developing pastoralists'

resilience and adaptations to climate change (Muricho et al., 2019; Berhe et al., 2016), making sure that livestock feed enterprises are profitable (Mwaura et al., 2015; Hidosa and Tesfaye, 2018), restoring degraded lands (Mureithi et al., 2015), and making sure that livestock feed management helps minimize risks associated with livestock feeding (Kula et al., 2016) are all critical strategies of adding value to pastoralism and coping mechanisms that pastoral communities use to leverage the health and production of their livestock through access to feed and nutritional supplements.

2.2.3 Livestock Breeding and Breed Upgrading

Breed improvement has been used in the tropics to increase the meat and milk production of indigenous animals (Osei-Amponsah et al., 2020). According to Ojango et al. (2017) and Sarkar (2020), the adoption of genetic breeding technologies is a strategy for improving livestock performance and yields. Livestock breeding as per Kebede, Adugna, and Keffale (2018) aims to improve livestock body conditions, lactation length, calving interval, meat and milk yields, and market potential. Osei-Amponsah, Asem, and Obese (2020) talk about how cows give birth at a young age and say that livestock breeding is important for increasing producers' income through markets and the reliability of households' food security.

Consistent with Mueller et al.'s (2015) study on the success of community-based livestock breeding programs and Kumari et al.'s (2019) study on factors influencing meat and milk production using a case study of Badulla District, Sri Lanka, these studies agree with the findings of Karnuah et al. (2018) and Ahmed et al. (2015), where livestock breeding programs succeeded in Liberia and Ethiopia, respectively, demonstrating that livestock breeding can produce positive results when production and management

resources are available. Ndlovu, Mayimele, Wutete, and Ndudzo (2019) back up these results by saying that improving livestock breeds is also good for the health of indigenous breeds, the amount and quality of their products, and the money that livestock producers and entrepreneurs can make from local and cross-border markets.

2.2.3.1 The Inferiority of Local Breeds in Pastoral Areas. Melesse et al. (2020) and Khainga et al. (2018) assert that inferior livestock breeds and a lack of competitiveness in markets are reducing livestock production and productivity. The Shibru (2017) study on livestock production characteristics and the Simonet et al. (2020) study on livestock market functionality and competitiveness both demonstrate that increased livestock production viability results in increased market share for meat and milk, as well as foreign exchange from international markets. According to Melesse et al. (2020), de Glanville et al. (2020), and Feliciano (2020), the natural breeding of indigenous breeds and the lack of alternative reproductive systems like artificial insemination and controlled transfer of traits hurt the potential for livestock production and access to markets.

It is also argued by Kinyua (2016) and Khainga et al. (2018) that the low adoption of livestock breed improvement programs is attributable to the growing gap between demand and supply for artificial insemination (AI) services, as well as to the slow adoption of improved livestock breeds and phenotypes. This gap is also linked to a high preference for traditional breeding methods and the unsustainable nature of AI components, which include laboratory and extension services. Also, Ogola et al. (2018) and Taban and Cikir (2018) say that there are not enough qualified technical workers and there is no state policy on livestock development, which hurts the chances of improving local breeds and the economic growth of people who keep livestock and business owners.

2.2.3.2 Livestock Breed Improvement Programmes and Outcomes.

Numerous breeding programs in sub-Saharan Africa have been successful to varying degrees. According to Mdladla et al. (2016) and Leroy et al. (2016), insufficient funding, incorrect rules, unsatisfactory farmer and stakeholder engagement, and genotype environmental incompatibilities continue to stymie livestock development efforts for livestock breed improvement.

In the studies by Kibona and Yuejie (2021) and Abraham et al. (2018) on breeding goals, it was found that innovative, state-of-the-art breeding technologies and government policies and funding programs were important for successful livestock breeding, improved performance of local breeds, and better quality and quantity of products.

Breed improvement submissions by Olawumi and Farinnako (2017) show that vegetation has significant effects on the genetic potency of indigenous animal breeds. This fact is also presented in Leroy et al. (2016) findings on the sustainability of crossbreeding in developing countries. Leroy et al. (2016), Ongoma et al. (2018), and Silanikove and Koluman cite a lack of artificial insemination (AI) services, insufficient breed performance recording and monitoring systems, human and institutional resource constraints, illiteracy of the majority of livestock keepers, a lack of information, high costs of breed upgrade, and the effects of climate change as the main problems that affect the efficacy of livestock breeds in developing economies and drylands.

It has been identified by Kebede et al. (2018) and Mdladla et al. (2018) that a lack of data and information systems is a barrier to evidence-based livestock breeding projects. Roessler et al. (2019) demonstrate a lack of farmer involvement in breed improvement programs, an inability to fully exploit the genetic potential of introduced

animals, and inefficient modeling of livestock genetic characteristics as elements retarding breed improvement efforts. It is also found that research and innovation (Ojango et al., 2017), the transportation of livestock breeds and genetic materials (Kebede et al., 2018), and the establishment of breeding programs among indigenous and pastoral communities (Ng'asike, 2019) all increase opportunities for technology transfer, knowledge, skills, and attitude change to be adopted and replicated by various categories of livestock development stakeholders.

Osei-Amponsah et al. (2020) and Mdladla et al. (2016) say that good results from already introduced breed phenotypes will increase acceptance and adaptability of breeding as a pillar for animal health and production and as a key element for market access.

2.2.4 Leather Industry and Value Chains Developments

Jaáfar-Furo et al.'s (2021) evaluation of livestock hides and skin marketing in Adamawa State, Nigeria, and Wanyoike et al.'s (2018) analysis of Somaliland's hides and skins value chains show that hides and skins serve a variety of economic purposes for many nations and, by extension, improve the livelihoods of rural dwellers who participate in by-product marketing. According to Alemnesh et al. (2018) and Kenea (2019), leather is one of the most widely traded commodities in the world.

The leather trade is rapidly expanding. It has an annual value of approximately \$100 billion (Kenea, 2019; Jaáfar-Furo et al., 2021). Despite having one-fifth of the world's livestock, African countries produce only 4% of global leather and contribute only 3% of its value (Jaáfar-Furo et al., 2021).

Ethiopia's leather sector generated approximately \$110 million in 2016, according to Kenea (2019). As presented in Wanyoike et al. (2018), the role of hides and skins in the economic systems of the majority of developing countries, particularly Ethiopia and Somaliland, is beneficial. In addition, Awan et al. (2019) argue that the leather industry is advantageous for Pakistan and India's economies.

In a snapshot of the western world economy, the United States of America (USA) earned \$1.62 billion in trade revenues in 2018 from the hide, skin, and leather business, which includes livestock hides, pigskins, and semi-processed leather products (Adem, 2019; Balehegn et al., 2021). In 2017, the United Kingdom (UK) exported £1.42 billion worth of leather (Sabanoglu, 2018), and Nigeria has long been known as one of the world's largest suppliers of hides and skins (Yakasai, 2019).

The Nigerian Economic Summit Group (NESG, 2017) notes that the leather sector is information-scarce, and it can be difficult to obtain reliable data at times. Similarly, Adem (2019) asserts that there is a dearth of data on local and demographic research that could be used to grow the leather industry and attract investment. Balehegn et al. (2021), Yusuf and associates (Yu et al., 2019), Gabdo et al. (2020), and Mengistu et al. (2020) all talk about how important it is for farmers to have socioeconomic policies that help them use value addition and innovation to get the most out of livestock value chains.

The study by Alemnesh et al. (2018) on the quality of hides and skins marketing in Ethiopia's Oromia region, the study by Audu et al. (2020) on cross returns from hides and skins enterprises, and the study by Sabanoglu et al. (2018) on predicting the value of hides and skins all show that the industry faces a number of structural, economic, and technological problems that are more severe in the developing world.

Insufficient funding, inconsistent taxation, deterioration of quality, lack of market information, inadequate infrastructure, price volatility and inefficiencies, and animal diseases and parasites are just a few of the major issues affecting the leather industry. Other leather industry challenges discussed by Ja'afar-Furo et al. (2021); Gabdo et al. (2020); Awan et al. (2018); and Yakasai (2019) include uncoordinated hide and skin collection, limited capacity of rural collectors and aggregators, non-functionality of some potential tanneries, and migration of livestock away from markets, abattoirs, and reliable road networks.

Although Kenya was once a major center for leather footwear in East Africa, it is now a negligible exporter of leather and leather products worth \$140 million, accounting for 0.14 percent of global exports (Wanyoike et al., 2018). (Jaáfar-Furo et al., 2020; Wanyoike et al., 2018) say that most Kenyan leather is now made and sold as a commodity with little thought to quality or style.

2.2.5 Pastoral Farming Systems and Development Opportunities

Pastoral farming systems are dwindling as a result of increasing urbanization and shifting land use (Mengistu et al. 2020). This is evidenced in the studies by Mwaura et al. (2015) and Kihui et al. (2017), where livestock farming (just to mention two regions) is no longer the economic backbone of Ethiopia's Borana region and Uganda's Karamoja sub-region as it used to be in the past three decades.

According to Mengistu et al. (2020), the diversification into crop farming in pastoral areas may exacerbate future environmental degradation by diverting attention away from the resources available to other livelihood options if appropriate precautions are not

taken. Balehegn et al. (2021) say that pastoralists should be careful about trade-offs and combine crop and livestock production.

The long-term viability of pastoralism is in doubt due to increasing climate variability, leading to a consistent drive to adopt more efficient, quick-yielding, and sustainable livelihoods (Ongoma et al., 2018; Herzog et al., 2018). Berhe et al. (2016) and Muricho et al. (2019) say, on the other hand, that diversifying livelihoods in pastoral areas requires a lot of analysis and optimization.

Alemaheyu et al. (2017) argued that increased crop cultivation has a detrimental effect on pastoral rangeland productivity, especially in more fertile range areas. Ogola et al. (2018) say that the change in market opportunities caused by competing land-use systems and priorities is also a cause of agricultural encroachment on rangelands.

2.2.6 Rangeland Management and Grazing Systems

Overgrazing of livestock results in significant land degradation in Sub-Saharan Africa, leading to the destruction of 48% of rangelands (Wynants et al., 2019). Deribe (2015), Omollo et al. (2018), and Berhe et al. (2016) all show that strategies for sustainable livestock intensification, such as improving feed quality, range and grazing land rehabilitation, the introduction of improved forages, silvopastoral systems, and herd genetics, can improve resource economics and production in pastoral areas.

According to Balehegn et al. (2020), sustainable farming intensification strategies are not always readily accepted. As a result, smallholder farmers throughout Africa require policy direction, financial support, and technical assistance (Ng'anga & Robinson, 2018). Forabosco (2017) also says that livestock is an important way for millions of

smallholder livestock producers in Africa, who make up one-third of the world's livestock population, to make a living and stay healthy.

Both urbanization and income growth are driving more investment in livestock in Africa (Kihoro et al., 2021), and in line with Tricarico et al.'s (2020) study on the sustainability of dairy production in low-income countries, both urbanization and income growth are driving more investment in livestock. Findings in Balehegn et al. (2019) and Kihui et al. (2017) show that Africa's growing livestock population is causing environmental problems such as overgrazing, land degradation, increased greenhouse gas (GHG) emissions or production, bush encroachment, and desertification.

With the expected increase in the number of African livestock in the future, GHG emissions and other negative environmental effects of herding will likely increase as well (Forabosco et al., 2017; Kihoro et al., 2021). In Balehegn (2020), Feliciano et al. (2018), and Ngánga and Robinson (2018), it is also said that the current technologies and methods for livestock production make it possible to focus on increasing productivity per animal rather than increasing the number of animals, which reduces the negative effects of livestock on the environment.

2.2.7 Livestock and the Environment

Since prehistoric times, animals and the environment have had a close relationship, and harmonious livestock-environment interactions are required where pastoralism and nature conservation are inextricably linked and require significant management attention (Ogutu et al., 2016; Balehegn et al., 2020). Otte et al.'s (2019) study on a comparative overview of livestock and environmental interactions using the case of Sub-Saharan Africa shows how important it is to understand how livestock and

the environment interact in order to build a sustainable livestock sector in different agro-ecosystems.

Ogutu et al. (2016) agree with this idea. They say that an imbalance between livestock and the production resources provided by the environment, as well as an increase in the number of wild animals in areas with potential for livestock production, contribute to the further degradation of the environment and the spread of livestock and human epizootics.

Yasin et al.'s (2015) study on the physico-chemical and bacteriological quality of drinking water from various sources in the Jimma Zone, Southwest Ethiopia, confirms the environmental contamination caused by livestock feces. That is why Steffen et al. (2015), Ercumen et al. (2017), and Atzori et al. (2016) recommend that human development be guided by the changing planet and that planning for the use of environmental resources should prioritize relationships, resource balance, and environmental sanity. Newbold et al. (2015), Henderson et al. (2015), and Aguirre-Villegas and Larson (2017) all show that livestock producers can grow pasture and help with land regeneration to lessen the impact of grazing on the environment. This will put less stress on the environment.

It is argued by Basamba et al. (2016) that unstructured and uncontrolled livestock grazing can deplete rangeland resources and render them unsuitable for biodiversity. Egeru et al. (2015) say that giving community institutions more power will make them more likely to create community-based environmental management frameworks that make sure there are checks and balances in how the environment is used.

Elhadi et al. (2015) place a premium on the benefits of well-managed rangeland ecosystems and livestock production activities, as well as on concepts such as HNRM

that aim to strengthen the relationship between livestock and the environment in which they are kept. Karmeback et al.'s (2015) study, "Evaluating gender roles in a changing landscape: Diversified agro-pastoralism in the drylands of West Pokot, Kenya," shows how important it is to use nature preserves to protect the health of the rangelands and the link between managing livestock and managing wildlife in the same ecosystems.

Mayanja et al. (2015) found that while Uganda's rangelands are relatively better than the majority of rangelands in Eastern Africa, reductions in livestock production resources, particularly during the dry season of the year, increase pastoralists' food, income, and nutrition insecurity. The same thing happens in Burkina Faso's sub-humid zone, where people's views of pastoralism's viability and pastoralists' well-being depend on how land use plans are made, as well as how well they help pastoral communities adapt to the effects of climate change (Kima et al., 2015; Mayanja et al., 2015).

Tilahun et al. (2017) show in their study on the challenges and contributions of crop production in agro-pastoral systems on the Borana Plateau, Ethiopia, that the number of pastoralists who do opportunistic crop farming is affected by the lack of vitality of pastoral rangelands and the steady drop in rainfall.

2.2.8 Value of Pastoralism in Kenya

Nyariki et al. (2019) and Kuria et al. (2016) estimate that pastoralism and the value of the pastoral economy in Kenya are worth \$1.13 billion, with the livestock sector accounting for 92% (or \$1.04 billion) and the non-livestock sector accounting for 8% (or \$0.903 billion), respectively. Annual national pastoral livestock offtake was estimated to be worth \$0.189 billion, while annual meat offtake was estimated to be worth \$0.389 billion at 154,968 metric tons. Annual meat consumption in the country was estimated at

553,200 metric tons, with pastoral meat accounting for 154,968 metric tons, or 28% of that total (Nyariki et al., 2019). Also, Nyariki et al. (2019) say that the Total Economic Value (TEV) approach takes into account the many ways that pastoral systems add value to the economy, including market and non-market goods and services that are often overlooked.

Amwata et al. (2015) demonstrate that an accurate estimate of pastoral production's contribution can be instrumental in lobbying for increased investment in pastoral areas to promote environmentally sound development. Amwata et al. (2015) look at the factors that make agropastoral and pastoral households in the drylands of Kenya vulnerable to food insecurity. They use Kajiado and Makueni counties as case studies, where climate change and low adaptive capacities are identified as the main challenges. IGAD (2017) shows how important resilience interventions are for improving livestock production, the well-being of pastoralists, and the contribution of the pastoral economy to the local and national economies of Kenya.

2.2.9 Climate Change and Pastoralism in Kenya

Climate change has been established to be real, and it is already having an effect on economies and the livelihoods and lives of communities in a variety of countries and areas (Kimaro et al., 2018). According to Kimaro et al. (2018) and Uddin and Kebreab (2020), the climate change phenomenon is becoming more severe in rangeland ecosystems that large-scale livestock producers rely on. It is having a big effect on the food system, which makes agriculture in general much less profitable (Havlik et al., 2015).

Fahey et al. (2017) discovered similar results regarding the global severity of climate change's impact on food supply and animal production systems. Godde et al.

(2021) and Hayhoe et al. (2018) say that climate change is a major concern for livestock production systems around the world and that changes in the atmosphere are one of the physical causes of climate change.

Reduced rainfall in livestock production zones is gradually affecting livestock health and production as well as livestock keepers' well-being, according to an FAO (2019b) study on water use in livestock production systems and supply chains and a Herrero (2016) study on adaptations for climate change mitigation. This is because water and forage resources are finite, and the search for them has become stressful.

Sloat et al. (2018) and Rojas-Downing et al. (2017) say that the increasing importance of precipitation variability on global livestock grazing lands and the different ways to manage climate change risks in livestock husbandry and environmental management are important ways to improve the availability of livestock and forage resources and the ability of rangeland ecosystems to recover.

Carabine et al.'s (2015) study identified opportunities for ASAL resilience strengthening that can be achieved by countries attempting to resolve drought emergencies through policy as the drought in Eastern Africa worsens. Fernandez-Gimenez et al. (2015) suggest that these policies be adopted and put into place to strengthen the ability of community-based rangelands to adapt.

Balehegn et al. (2020) say that trade-offs for climate-resilient pastoral livelihoods in Kenya's Maasai Mara and other wildlife-livestock interface contexts require organized land-use systems to protect animal resources, keep their economic value, and help the local and national economies. Kariuki and Birner (2015), Bonfoh et al. (2016), and Jones et al. (2015) all say that market-based conservation schemes, institutional development,

policy frameworks, and encouraging the use of climate data to reach long-term development goals in Sub-Saharan Africa are some of the most important ways to fight climate change.

Grazing intensity has an effect on soil organic carbon storage and other indicators of soil quality (Abdalla et al., 2018; Dass et al., 2018). Climate change's impact on small-scale farmers and pastoralists in arid regions is becoming more palpable (Debela et al., 2015). This is why Egeru (2016) talks about how important it is for pastoral areas to have information about climate risks and take effective action.

Pastoralists, as Joseph and Kaswamila (2017) and Akinmoladun et al. (2019) emphasize, require season-long resilience and innovative adaptation techniques to the effects of climate change. According to Kagunyu et al. (2016), the use of climate forecasting methods by pastoralists will make them better prepared and help them improve their strategies for dealing with the effects of climate change. Rojas-Downing et al. (2015) and Dantas-Torres (2015) both say that climate change is linked to changes in biodiversity because of low precipitation and increasing environmental overexploitation and abuse.

While Schielein and Borner (2018) discuss recent changes in land use and land cover dynamics across a range of vegetation ecosystems, Summer et al. (2019), Reyad et al. (2019), and Yu et al. (2019) conclude that the impact of extreme heat stress on milk and meat production, as well as the requirement for light grazing, will strengthen livestock keepers' resilience, particularly in terms of livestock production resource economics. Also, Butt (2015) says that adding technology to livestock husbandry and value chain

development will make livestock development interventions more efficient and effective, which is important for dealing with the effects of climate change.

Both Badelian and Ogutu (2016) and Nyariki and Amwata (2016) talk about how important it is to use technology to improve livestock production and marketing systems, as well as to give livestock stakeholders the knowledge and skills they need, especially in this time of climate change and decreasing livestock production resources.

2.2.9.1 Pastoralists' Resilience to Shocks. Integrated crop and livestock systems help create a more shock-resistant income portfolio as the climate changes (Chishimba and Wilson, 2021). Ado et al. (2019) and McGrath et al. (2019) say that livestock keepers who are able to adapt and keep their farming operations going integrate commercialization intent into their farming activities. This helps them build up both physical assets and financial reserves that help them adapt to changes in their production and business environments.

Chishimba and Wilson (2021) view this accomplishment as a triumph of tenacity. This result backs up a claim made by McGrath et al. (2019) that farming households that value education and social capital both inside and outside of their communities have a bigger safety net and can change quickly.

It was discovered by Smith and Frankenberger (2018) that education that leads to paid employment improves households' food and income security. Farm home managers who plan for the near and distant future intentionally have a greater capacity for transformation (Upton, 2016). According to Smith and Frankenberger (2018), households that are trapped or locked in a low-resilience status quo as a result of variables that are

both within and primarily outside of their control, such as the nation's poverty and lack of economic prospects, suffer from low agricultural livelihood production.

On the other hand, McGrath et al. (2019) found that literate households exhibited greater resilience. This outcome is enabled by households' ability to conserve resilient livestock breeds and facilitate breed distribution. Egeru (2016) and Molnar et al. (2020) say that progressive pastoralist communities use sustainable ways to keep livestock, make livestock products that are demanded by the market, and promote the long-term use of livestock through marketing.

2.3 Livestock Marketing Interventions and Livelihoods

2.3.1 Role of Livestock Markets

Markets connect producers and consumers by facilitating the purchase of livestock for a variety of purposes, including breeding, fattening, gifting (marriage, parties, and fines), or slaughtering and consumption (Berihun, 2017). While a marketing system can be defined as the collection of product channels, market participants, and business activities that facilitate the transfer of goods and services from producers to consumers.

Studies by Abebe, Tadie, and Taye (2018) and Sabana and Matanda (2019) on market factors and determinants of livestock commercialization define a livestock marketing system as a collection of channels, intermediaries, and activities that facilitate the transfer of goods and services from producers to consumers. In the same way, Ayele (2019) says that marketing is all the business activities that go along with the flow of goods and services from where they are first made in agriculture to where they are used.

It is argued by Roba et al. (2019) that livestock traders engage in a variety of activities, including distribution, further transformation, and promotion of livestock and

livestock products in a variety of market categories. In agricultural economics, marketing is associated with a variety of functions that add utility, or value for customers, to farm output, such as time, form, and place utility (Berger, 2015). Isako et al. (2019) and Ryschawy, Desenhaus, and Bertrand et al. (2017) say that market access is a key factor in pastoralists' market participation and risk management, leading to a higher rate of selling livestock and livestock products.

During the drought, marketing plays a larger role in modifying herd sizes in high-market access areas where pastoralists participate in livestock markets, but in relatively small quantities and at varying rates over time (Roba et al., 2019). Livestock is sold in pastoral areas to meet family cash needs for food and clothing, as well as educational and medical expenses (Roba et al., 2019). According to Isako et al. (2019), there is a transport system for the majority of livestock to primary, secondary, and terminal markets via trekking. (Isako et al., 2019; Shabana & Matanda, 2019) say that well-known traders use trucks or herders to move live animals to feedlot operators, export abattoirs, and major markets.

Significant weight loss and even death are common on stock routes, as are insufficient feed, water, and resting places, as well as theft and robberies. Most of the time, prices are set by haggling, since most traders don't know what the current market prices are or how to measure them (Berihun, 2017; Yiram, Ahmed, and Mohamed, 2017).

2.3.2 Livestock Markets and Socioeconomic Factors

Socioeconomic factors such as culture, religious practices, beliefs, conflict, poverty, and limited business start-ups, among others, impede the performance of livestock traders in various market segments (Asfaw, 2018; Abebe, Tadie, and Taye,

2018). The primary drivers of livestock and livestock product consumption are population growth, urbanization, income growth in developing countries, growing urban centers, international influences (globalization and more liberal international trade), and technological advancements in the production, communication, and transportation sectors (Shabana and Maranda, 2019; FAO et al., 2020). According to Shabana and Matanda (2019), Asfaw (2018), and Berihum (2017), there are problems with marketing livestock because there is not enough feed, there is not enough water, animals get sick or die, and there are not enough veterinarians, all of which slow the growth of markets.

A good livestock marketing system has a significant positive impact on livestock commercialization (Aggrey, Kuganza, and Muwanika, 2018; Kembe & Omondi, 2018). Since pastoralists sell their livestock to other people through markets, Dido (2019) and Kassa, Anshiso, and Fantahun (2017) say that small-scale livestock trading in livestock production areas and primary markets must be organized well to avoid exploitation and the rise of rivalry during trading.

Aggrey, Kuganza, and Muwanika (2018) and Kembe and Omondi (2016) show that the way livestock keepers and traders act because of their culture has a positive and significant effect on livestock commercialization. This is because people keep and/or sell a lot of livestock to meet social, cultural, and economic needs.

Dido's (2019) study on livestock marketing practices and systems, as well as Ameso et al.'s (2018) study on the role of non-livestock sectors in the development of pastoral areas, demonstrate that there is sufficient investment in non-livestock sectors in pastoral systems, with a limited emphasis on the pastoral economy's enhanced production and marketing capabilities. Also, many studies, for example, Lubungu (2016)

and Shibru (2017), show that organizing livestock production and marketing interventions with strong links to markets will help local entrepreneurs get into new markets and be more competitive.

Mwangi, Ngigi, and Mulinge (2015) say that establishing a livestock trade culture will change pastoral production goals that are heavily rooted in the traditional economy into an embrace of market access capabilities that will speed up pastoral communities' participation in the development of the dryland economy.

Kgosikoma and Malope (2016) and Cheteni and Mokhele (2019) argue that governments and civil society organizations investing in policy development and implementation strategies will strengthen rules about livestock production, trade, and consumption of a wide range of goods. This will make livestock trade more viable in pastoral communities.

By focusing on the livestock marketing agenda, policy and regulatory frameworks will structure and facilitate the governance of various livestock market segments, which will have an effect on cross-border markets (Shibru, 2017). Kgosikoma and Li (2017) say that this result shows how important it is to develop domestic and export markets in order to reduce poverty, bring in more money to livestock producers and merchants, and keep the positive trend toward more market-oriented action.

2.3.3 Characterizing Livestock Markets and Marketing Contexts

Benefits and Shortfalls of Livestock Markets. Markets for live animals are frequent hotspots for the spread of multiple infectious diseases in a variety of global production systems (Knight-Jones et al., 2016). In Cameroon, livestock trade is primarily conducted through a market system, leading to submissions such as those by Motta et al. (2019), which suggest that increasing awareness of the risks associated with livestock trade systems and markets is critical for developing targeted and evidence-based interventions. Egbe et al. (2016) also say that there is a pool of infectious diseases that are common in all market classes. This means that there are similar disease risks all along the livestock supply chain.

Animal markets are also ideal locations for gathering information, communicating, and mitigating disease risks and their impacts, owing to their strategic position within the livestock supply chain for disease prevention, control, and management (Egbe et al., 2016; Little, Tiki, and Debsu, 2015). But, as Motta et al. (2019) and Muguniere et al. (2016) found in their studies on the factors that affect the prices of livestock and the role of the private sector in the livestock trade, there are still a lot of things livestock-based stakeholders and policymakers do not know about animal markets and how they affect public health.

Fornari et al. (2016) and Mousley et al. (2016) found that while animal markets serve a socioeconomic purpose, structuring their organization and management will assist in mitigating risks to animal and public health throughout the livestock supply chain. According to a study by Mousley et al. (2015), exporting livestock from Somaliland to

countries on the Arabian Peninsula is a big part of the economy and Somaliland's main source of foreign currency.

Cross-border trade is the primary source of livelihood for the majority of livestock-keeping communities in the Horn of Africa region, as well as a source of capital for livestock and non-livestock-based businesses (Little, Tiki, and Debsu, 2015). In fair rangeland ecosystems, drought doesn't affect the number of small ruminants, but it does affect the number of livestock, and setting up quarantine stations has a big effect on the number of animals that are exported (Napp et al., 2018; Handstaff, Hasler, and Rushton, 2015).

2.3.3.1 Livestock Markets and Policy Directions. Institutional and policy factors have an impact on the size of the livestock trade in the countries and regions that engage in it. According to Little, Tiki, and Debsu (2015) and Motta et al. (2019), market solutions are created through necessary regulatory, institutional, and policy reforms, as well as stakeholder engagement. Similarly, Mousely et al. (2015) and Molia et al. (2016) assert that the international market protocol determines the efficacy of cross-border trade enabled by the free movement of goods and services.

Extreme competition due to a lack of formal marketing, systemic imbalances in supply and demand, ineffective management of non-market forces, and increasing dynamics of livestock production and marketing due to social, economic, and political instability in the market region (Mugunieri et al., 2016; Napp et al., 2018; Kelly et al., 2016) all affect the performance and diversity of the livestock trade.

Anno and Pjero (2021), Little, Tiki, and Debsu (2015), Ameso et al. (2018), and Dido (2019) all list youth and women's participation in livestock trade, the integration of

adult literacy programs into pastoral production systems, the establishment of proactive livestock development directorates, and the grounding of livestock marketing in business models and strategies as important ways to make local and regional markets work better.

Supply and Demand of Livestock and Products in Markets. Globally, livestock farming is the main component of the livestock trade as beef and milk products are largely consumed in many markets (Lubungu, Sitko, and Hichaambwa, 2015). In southern Africa, Zambia has two major beef producers: small-scale and commercial-scale farmers, and their distinct characteristics influence the choice of market channel and prices (Murendo et al., 2020). In terms of these outcomes, Sikamwaya and Guiyu (2020) say that a good production and marketing strategy for livestock resources is for producers to increase productivity and lower transaction costs. This lowers prices for customers and increases export quantities, which could bring in foreign exchange for the country.

It is also suggested by Shibru (2017) and Kelly et al. (2016) that training farmers on the right breeding stock and local breed improvement, increased investment in livestock health management, dissemination of price information, and beef quality improvement are more urgent now if small-scale farmers are to move out of poverty through market access (Ameso et al., 2018). It is recommended by Lubungu, Sitko, and Hichaambwa (2015) and Fornari et al. (2016) that there is also a need to invest in marketing centers in order to reduce transaction costs across countries and regions.

Aggrey, Kuganza, and Muwanika (2018) and Ameso et al. (2018) argue that governments, community producer groups, and other interested parties should collaborate to build infrastructure for livestock production and marketing, as well as conduct research that can help shape policy and strategies for making the most of

livestock value chains in different markets, in order to meet the supply and demand needs of those markets.

2.3.3.2 Brokerage in Livestock Markets. Brokers are important market actors who mediate formal and informal transactions within and between livestock markets, thereby facilitating the flow of goods and services across local and international borders (Manyeki, Balazs, and Kano, 2021). For example, brokers are prominent figures in cross-border livestock trading in the borderlands of Kenya and Somalia, and the analysis of brokerage produces important insights into informal economies in the African borderlands (Parry-Hanson et al., 2019; Manyeki, Balazs, and Kano, 2021). In northern Kenya's livestock markets, especially in the Garissa area, brokerage helps to legalize Somali livestock as it moves from southern Somalia, where there are few rules, to central and coastal Kenya, where there are more rules (Parry-Hanson et al., 2019).

Livestock brokers facilitate business transactions that are essentially interethnic (Zhou & Staatz, 2016), and within cross-border livestock trading networks, sellers and buyers are often separated by long distances and may be based in different trade corridors marked by dissimilar institutional environments and exposures to risk. According to Holm et al. (2019) study on corridors of trade and power and Martijn and Leynseele's (2018) study on studying development through the lens of brokerage, brokers play important roles in livestock trade networks where long distances between source and destination markets make it hard for producers to get market information.

Brokers also set prices with other traders and guarantee security to producers within border markets, where informal rules govern exchanges (Golub, 2015). Importantly, as per the findings in Martijn and Leynseele (2018) and Tothmihaly (2018),

brokers provide market information about distant markets. Findings in Vrankic and Krpan (2017) show that information asymmetry is a challenge not only in livestock marketing but in industries around the globe, creating a gap or "structural hole" that brokerage in trade networks must fill. Information asymmetry in livestock marketing thus reinforces the importance of brokers as intermediaries between trading parties that do not meet face-to-face. Along with Willet et al. (2019), traders start as brokers and later become traders. Golub (2015) and Hagmann and Staal et al. (2019) make the case that traders know enough about livestock brokering because of this.

Livestock Marketing, Clan, and Conflict. In Sub-Saharan Africa and other similar contexts of the world, the culture of the pastoralists affects their livestock marketing practices, such as setting selling prices and the supply of live animals to the market (Mumba et al., 2018; Shibu, 2017). Ameso et al. (2018) and Dido (2019) say that the main goal of pastoralists is to keep a big herd, because that determines their social status in the community.

This intent is reinforced in Mumba et al. (2018), where holding a considerable number of live animals by pastoralists is not only a manifestation of cultural elements but also a by-product of the pressures of the environment. The power and social authority of an individual in the community are measured based on the number of live animals that he or she has. In fact, Ethiopia has the highest livestock population in Africa and the tenth highest in the world (Islam et al., 2016).

Like in any country where traditional farming systems are used, pastoralists choose to sell their animals when there is a need for funds (Abebe, Tadie, and Taye, 2018). Clan-based institutions have a paramount role in pastoralists' social, economic,

and political lives, where clan leaders govern livestock keeping and utilization decisions (Yiram, Ahmed, and Mohammed, 2017).

Studies on peace and security showed that most of the clan conflicts stemmed from the raiding of live animals, revenge, and bloodshed (Pica-Ciamarra et al., 2015). Most inter-ethnic and intra-ethnic conflicts in pastoral and agro-pastoral areas are caused by competition for land, a huge rise in the number of modern guns, and a rise in poverty with very limited access to education, health care, economic activities, safe water, and other necessities (Burke, Myers, and Jayne, 2015).

Pastoral conflicts occur during dry seasons when increased mobility, desperation, and the dire need for livestock production resources locally and across the border are significant (Jagnani et al., 2018; Dido, 2019; Isako et al., 2019). Yiram, Ahmed, and Mohammed (2017) also say that clan conflicts are caused by more than just social, economic, and political factors. They are also caused by the society's traditions or culture.

Pica-Ciamarra et al. (2015) and Little, Tiki, and Debsu (2015) back up this claim by saying that repeated raiding, revenge, counter-revenge, and intra-clan conflicts are problems in livestock marketing that stop the free flow of live animals and products from the place where they are made to the place where they are meant to be sold.

2.3.3.3 Market Access Opportunities and Inhibitors. Despite several studies showing the effect of access to markets and weather conditions on crop production, in relation to Abay et al.'s (2018) study on access to markets using livestock production decisions and Yiram, Ahmed, and Mohammed's (2017) study on pastoralism and clan conflicts, little is known about whether and how livestock production systems respond to variation in weather risk and access to markets.

It is also found in Melesse and Cecchi's (2017) study on using market experience for risk aversion that pastoralist households living close to markets are more likely to engage in market-oriented livestock production and use modern livestock inputs. Also, Jensen, Barrett, and Mude (2017) say that households that live in places where the weather is more unpredictable are less likely to raise livestock for markets. Instead, they are more likely to raise livestock for savings and insurance.

Despite abundant livestock resources, Ethiopia's value of livestock production and consumption remains far below potential, and this has hampered the overall contribution of the livestock sector to the national economy (Bachewe et al., 2018; Jagnani et al., 2017). To make a strong link between livestock production and marketing investments (Jensen, Barrett, and Mude, 2017; Bachewe et al., 2018), it's important to focus on production, spread your livestock portfolio across different types of livestock, and invest in better livestock inputs.

In line with Amare, Mayrotas, and Edah (2018), smallholders' livestock production and marketing decisions are critical for responding to market dynamics and trade opportunities. Gebremedhin et al. (2017) found that people who keep animals in remote

areas or in places with unpredictable rain are less likely to produce animals for the market, either by selling live animals or dairy products.

Greater access to markets is also positively related to the use of modern livestock breeds, and households living in variable and unpredictable weather conditions are more likely to engage in livestock production as a precautionary measure and insurance against shocks (Pica-Ciamarra et al., 2015; Kibona and Yuejie, 2021). According to Kibona and Yuejie (2021) and Sang, Nyein, and Soojung (2016), market participation by market stakeholders is key to ensuring better income, food security, and sustainable livestock supply and demand in markets. Farmers in both traditional and modern livestock markets are not very active in the market.

In Tanzania and Kenya's rural markets, low volume of sales, low education levels, and poor access to credit and veterinary services are the major factors that limit market participation (Kibona and Yuejie, 2021). As stated by Kgosikoma and Malope (2016), predictors of market participation are age, gender, income, membership in cooperatives, access to market information, and farming experience. Stephen et al. (2018) also found that setting up strategic cooperatives helps farmers find profitable markets, which can improve market performance and access (Esmael, Bekele, and Ketema, 2016). This is because the cooperatives act as a communication channel for farm loans, price setting, market information sharing, and training on commercial farming.

It is also pointed out by Wen-Chi and Sicelo (2019) that market participation is a better way to ensure improved income and food security among livestock keepers. It promotes the sustainable supply of livestock and livestock products in markets. Kibona and Yuejie (2021) and Esmael, Bekele, and Ketema (2016) recommend that the

government guide livestock marketing activities through regulatory frameworks, coordination of extension services to give producers and traders training on commercial farming, pricing, and organization of livestock marketing, and diversification of pastoralists' livelihoods.

2.3.3.4 Livestock Marketing and Export Constraints. Livestock production systems in most African countries are generally subsistence-oriented, and productivity is very low (Eshetu and Zewudu, 2016). Accordingly, as per the findings in Addis (2017) and Yiram, Ahmed, and Mohammed (2017), the low productivity of the animals and the absence of market-oriented production systems are described as the global constraints of livestock export production.

In many livestock markets in Africa, domestic consumption, official exports, and high demand for animals by the export abattoirs, according to Bachewe et al. (2018), Kibona and Yuejie (2021), and Addis (2017), are hindered by the absence of an effective grading system, an absence of a market information system, an absence of promotional activities, significant supply-related constraints, the prevalence of diseases, and traditional production systems. Also, Evans et al. (2017) say that the illegal export trade, lack of marketing infrastructure, competition, repeated bans, movement restrictions, and lack of port facilities all have a major effect on the marketing of livestock.

Livestock transportation facilities, improved slaughterhouses, livestock resting sites, and storage and quarantine facilities at required sites as per Togarepi, Thomas, and Bankono (2016) need to be available to facilitate efficient livestock trading. Due to challenges associated with export and cross-border trade, it is recommended by Thomsen et al. (2019) and Mebrate, Tewodros, and Derby (2020) that the government's

ability to control the illegal trade of live animals and products across borders will create sanity in local and cross-border markets.

Yiram, Ahmed, and Mohammed (2017) also say that ethical systems of livestock trade can help make livestock production and marketing more viable, productive, market-oriented, competitive, and sustainable in pastoral, agro-pastoral, mixed farming, urban and peri-urban farming, and specialized intensive farming systems.

2.3.3.5 Livestock Marketing Opportunities in Southern Africa. Namibia is a semi-arid country well-endowed with natural pastures and is suited for extensive livestock ranching. Due to the country's harsh climate and livestock diseases, like Foot and Mouth Disease (FMD), contagious bovine pleuropneumonia (CBPP), or lung sickness, animals have to be held for 21 days before they can be slaughtered (Togarepi, Thomas, and Bankono, 2016). Addis (2017) and Melesse and Cecchi (2017) both say that low prices on the market, a lack of information about the market, and farmers' inability to raise enough healthy livestock to meet market needs are all things that make it hard for livestock entrepreneurs to reach export thresholds.

Small herd size, diseases, poor grazing, high mortality rates, poor extension services, inadequate market information, as well as insufficient provision of marketing infrastructures such as marketing pens, inadequate dipping services, and cultural practices determine the scale of market access in the Southern Africa region and other similar production contexts of Sub-Saharan Africa (Molotsi et al., 2017; Manyeki, Balazs, and Kano, 2021). In Zambia and Botswana, the veterinary cordon fence hurts most of the farmers because they cannot sell their goods anywhere in the country because of

restrictions put in place because of high disease rates and public health effects (Eshetu and Zewudu, 2016).

The major impeding factors in the production of high-quality livestock products, also presented in Togarepi, Thomas, and Bankono (2016) and Addis (2017), are the prevalence of contagious and killer animal diseases, recurrent droughts, low nutritional standards, inadequate marketing infrastructure, a lack of an adequate marketing information system, poor product quality, and inadequately skilled human power.

To deal with the effects of these problems, Togarepi, Thomas, and Bankono (2016) and Burke, Myers, and Jayne (2015) say that the government needs to make policies, laws, and rules; issue quality control directives; set up quarantine stations; promote and grow both domestic and international markets; collect, analyze, and share market information; encourage and carry out market research; and support and encourage the promotion of the livestock value chain.

Kembe and Omondi (2016) and Aggrey, Kuganza, and Muwanika (2018) say that more stakeholder engagement and partnerships need to be made and strengthened to help pastoralists understand the market, revitalize the private sector, lobby for the development and implementation of livestock breeding policies, support the improvement of market access, strengthen research, and help standardize livestock agenda interventions and development prospects.

After the collapse of the central Somali state in 1991, Somali livestock trade has increasingly been re-oriented towards terminal markets in central and coastal Kenya, helped by the more recent trade liberalization in Kenya (Little, Tiki, and Debsu, 2015; Njiru et al., 2017). The mostly informal cross-border trade (ICBT) has helped keep people's

jobs and brought in money for the government in Kenya, where informal transactions and formal rules overlap in the livestock supply chains fed by Somalia (Evans et al., 2017).

As Ndoro et al. (2015) say, exploring the link between changes in the political economy of cross-border livestock trade and the unintended effects of decentralization on the governance of livestock supply chains can strengthen the marketing protocol even more.

2.3.4 Emerging Family Farmers and Agricultural Livelihoods

According to Mmbengwa's (2015) study on communal livestock farming and Mbatha's (2021) study on livestock production and marketing for small emerging farmers, poor production methods and limited market access are some of the challenges that prevent small-scale African farmers from developing. Mbatha (2019) and Enahoro et al. (2019) also came to the same conclusions. They say that diversifying production and marketing strategies make it easier to get high economic returns from markets, which helps livestock production and marketing grow and expand.

Further findings in Dixit et al. (2015) show that poor grazing practices and a lack of health interventions lead to poor-quality livestock outputs. Also, the productivity of livestock is hurt by a lack of information, bad infrastructure, cultural issues, and low participation in key parts of the livestock production value chain, such as production, marketing, distribution, and the growth of places where people can buy livestock and livestock products (Mbatha, 2021).

It is also presented in Mmbengwa (2015) that livestock farmers in Sub-Saharan Africa are generally faced with high production and marketing challenges, which prevent them from becoming successful commercial farmers. According to Ndoro, Muthara, and

Chimonyo (2015) and Asante et al. (2016), small rural farmers face similar production challenges as those faced by their southern African counterparts but perform better at marketing their animals despite brokers controlling the market to the disadvantage of farmers.

The Mbatha (2021) study found a group of rural farmers who can solve most production and marketing problems if they are given the knowledge and skills they need to adopt a more holistic environmental approach to rural development. The diversification of income and employment portfolios is crucial for sustainable rural livelihoods (Thorat & Madheswaran, 2018). Kumar et al. (2018) say that the livestock sector can help poor rural households get out of poverty, make more money, and have less risk.

Livestock is one of the fastest-growing subsectors of agriculture and allied activities. Consistent with Seleka and Kebakile's (2017) study on the export competitiveness of Botswana's beef industry, it is found that although livestock farming is often cited as a viable option for the growth of household income, there has been very little study on the participation of the pastoralists in the livestock trade. In addition to the things that Seleka and Mapiye et al. (2007) pointed out, Sarkar (2020) and Enahoro et al. (2019) argue that a lack of access to land, limited livestock production resources, and a lack of good marketing opportunities make it hard for livestock farmers to sell their animals. These inabilities also make it hard for livestock activities to be more diverse.

Due to the intimacy with livestock, it is inferred in several studies that livestock trading is an optional economic activity for pastoral households in the Karamoja cluster region. The poor market infrastructure results in high transaction costs and varied access challenges. Even though pastoralist communities in eastern Africa and the Sahel region

of western and northern Africa have a lot of livestock, they have trouble producing food and making a living (Mbatha, 2021; Asante et al., 2016).

During drought periods, they suffer, and the struggle to reach the next rainy season becomes something they must endure. Poor livestock producers have low bargaining power in markets; hence, they sell their stocks at throw-away prices. Seleka and Kebakile (2017) say that credit-channeling agencies need to be strengthened and made more active to help businesses destined for international markets get the economic returns they need.

2.3.5 Food Systems in Pastoral Areas

Food security in pastoral areas is narrowly defined, focusing primarily on interlinks with livestock supply, utilization of livestock resources, and the stability of pastoral production systems and livelihoods (Hatab, Cavinato, and Lagerkvist, 2019; Carron et al., 2017). Much of the livestock-related literature in drylands has concentrated more on production and consumption while widely ignoring other elements and actors along the value chain, e.g., markets and marketing activities (Eltholth et al., 2015; Bren d'Amour et al., 2017).

Blummel et al. (2015) say that urbanization, climate change, and growing food and income insecurity are to blame for the loss of pastoral livelihoods and the threat to food security in developing countries. FAO (2017) and Blencha (2016) both say that reducing food loss and waste along the livestock value chain reduces the amount of pressure on fragile ecosystems and the food system to produce more, cuts greenhouse gas emissions, makes livestock systems more efficient, and improves food security and nutrition.

According to Clark et al. (2017), improperly managed animal waste can have serious environmental consequences, including odor issues, the attraction of rodents, insects, and other pests, the release of animal pathogens, groundwater contamination, surface water runoff, deterioration of the earth's biological structure, and catastrophic spills. Bogard et al. (2017) and FAO (2016) suggest that more research on how to cut down on waste and losses in livestock value chains will help developing countries produce livestock in a more sustainable way while reducing risks and uncertainty. According to Clark et al. (2017), improperly managed animal waste can have serious environmental consequences, including odor issues, the attraction of rodents, insects, and other pests, the release of animal pathogens, groundwater contamination, surface water runoff, deterioration of the earth's biological structure, and catastrophic spills. Bogard et al. (2017) and FAO (2016) suggest that more research on how to cut down on waste and losses in livestock value chains will help developing countries produce livestock in a more sustainable way while reducing risks and uncertainty.

2.3.6 Agricultural Policy and Regulatory Frameworks

Numerous agricultural studies and publications underpin the importance of policy as a leading determinant of growth, development, and achievement of agriculture objectives. According to Abay and Jensen's (2020) study on access to markets and impeding risks, it is found that the relationship between the production of animal-source foods and economic development in low- and middle-income countries is complex, works both ways, and operates at different levels. Iannotti (2018) also finds that richer countries tend to have a bigger livestock sector. This is because livestock contributes more to their agricultural GDP and the social and economic well-being of their people.

At the community and household levels in Africa, it is argued by Frija et al. (2020) and Abay and Jensen (2020) that livestock contributes to income and employment and is a store of wealth in many settings. In the study by Staal, Wanyoike, and Ballantyne (2019) on how livestock affects the economy, it is shown that livestock production also affects economic development through the participation of livestock owners and policyholders in making sure productivity is achieved and economic returns are used to improve the lives of those who depend on livestock.

Sustainable expansion of agriculture production through policy enablers, as per Enahoro et al. (2019), is achieved through a holistic approach to livestock keeping where all husbandry practices are integrated and well managed. Consistent with Desiere et al.'s (2018) study on current and future livestock product production and consumption in Sub-Saharan Africa, production of animal source foods may also slow down as a result of poor policy frameworks.

As stated by Enahoro et al. (2019), poorly managed livestock industry activities may lead to the loss of economic resources invested in the industry. Even though livestock is important for food and nutrition security, equal rights for women, and gender equality, these benefits are in addition to the important direct economic effects that livestock and foods made from animals have (Hatab, Cavinato, and Lagerkvist, 2019).

Policymakers and investors in low- and middle-income countries face complex tradeoffs regarding the policy and investment decisions necessary to meet the projected increased demand for animal-source foods (Enahoro et al., 2019). Clark et al. (2017) and Sarkar et al. (2020) say that countries with an existing livestock sector should think about

helping small and medium-sized farmers and value-chain contributors take advantage of the many opportunities livestock offers and become more profitable and market-oriented.

2.3.6.1 Policy for Competitiveness and Profitability. More externally oriented pathways to increase the supply of animal-source foods, such as imports, industrialization, and alternative products, would have a lower impact on economic development and growth in general (Abay & Jensen, 2020). For policy to get better, it should focus on reducing the barriers to livestock development. These barriers include poor investments, insufficient recurrent spending, low investments in research, a weak infrastructure and economic environment, and a lack of qualified knowledge and skills. These problems can be fixed by making agricultural policies that are viable, high-yielding, and competitive (Zhou & Staatz, 2016; Frija et al., 2020).

Technical constraints on feed and nutrition, genetic structure, health and disease problems, producer incentives, land tenure systems, marketing institutions, and input-providing institutions are addressed and further reduced through efficient policy frameworks (Desiere et al., 2018).

According to Mbatha (2019), SCA (2018), and Bachewe et al. (2018), a policy to deal with the problems that come with the export and import of live animals and meat products, such as supply problems, the spread of disease, traditional production systems, illegal export trade, and a lack of infrastructure, depends on the willingness of the government and civil society to take the lead in making the necessary policies and helping to put them into place.

Manyeki, Balazs, and Kano (2021) and Sikamwaya and Guiyu (2020) also say that strong and well-applied agricultural policies can solve problems like competition, quality standards, financing, repeated bans and other types of market restrictions, lack of facilities for producing and selling livestock, and well-defined programs and management areas.

2.4 Theoretical Framework

2.4.1 Theory and Practice in Livestock Business Endeavours

Theories and models are the bedrock of any business venture, whether it is a corporation, a charity, or a government initiative. A good business delivery framework is one that attempts to produce results in a competitive market setting. Szopinski et al. (2019) emphasize that market research should inform the delivery of competitive, robust, and efficient business models in the current and future challenging business environments. Like other commodity and service markets, livestock markets need both theoretical and practical foundations and plans to make a big difference for the economy, producers, and entrepreneurs.

The current level of fierce competition in animal markets necessitates both theoretical and practical answers. Equally, effective business models, according to Sort & Nielsen (2018), can boost business investment processes. This is done well by adding strategic foresight techniques to business modeling, as Spaniol et al. (2019) and Massa, Tucci, and Afua (2017) have pointed out, and by doing business model research and continuous market research studies.

Extreme competition is a widespread issue in the livestock industry in many parts of the world. Many variables contribute to this, including disparities in livestock producing fields' capacities to provide quantity, quality, and safe livestock and livestock products to the market. Strong evidence is needed to determine what causes too much competition in the livestock sector globally, regionally, and locally. But the use of technology for business modeling and research (Zalewska-Kurek et al., 2016), the definition of the role of business model innovations for business competitiveness and sustainability, and

Kohler's (2015) emphasis on the need to create and capture value will create niches for livestock businesses that are key to specialization.

As per Malmstrom (2017), market rivalry is also caused by differences in personnel and capital resources, supply and demand, and consumer preferences. Fletcher (2018) recommends that business model development and delivery be phased to allow for the development of each stage of a business and that entrepreneurial education be improved to strengthen understanding of business environments and seasonal dynamics in order to reduce the variance effects of such parameters on markets and business competitiveness.

Wirtz and Daisher (2017) also discovered that having an integrated business model conceptual framework strengthens the business foundation, allowing it to leverage its intent in the face of fierce competition. This knowledge should be based on Holm et al.'s (2019) definition of what a business model is and is not, as well as putting emphasis on the need for robust business programs and proposals.

2.4.2 Business Models for Consistency of Business Programming

Countries and economic sectors have capitalized differently on livestock production and marketing depending on their investments. Jonker and Faber (2019) say that managing competition and securing a market share and a niche can be done if the factors and activities that affect market access are based on theory.

Collective decision-making in entrepreneurial business modeling, as well as teaching business models through theoretical and practical learning, help firms develop robust competitive business strategies and position their businesses through secured competitive and comparative advantages. Holm et al. (2019) say that theory and practice

are combined in the livestock business to improve breeding, nutrition, yields, farmer resilience, livestock reproductivity, and the ability of livestock and livestock products to meet market needs.

According to Holm et al. (2019), it is prudent to assess the dynamism of selected business models for long-term value creation and business investment sustainability. The ability of corporate business models and theories to reinforce the structuring of livestock markets and the diversity of enterprises, organize entrepreneurs, and facilitate the ability of enterprises and firms to deliver value to customers within the precincts of sound business modeling, as emphasized by Kuratko, Bloodgood, and Hornsby (2017), and develop future research perspectives for business models as found in Wirtz et al. (2016), will enable corporate business models and theories to reinforce the structuring of livestock markets, as corporate models are idyllic in that they can strengthen and position business ideas in the market economy.

As Evans et al. (2017) and Malmström (2017) discovered, practical business model management in existing and new company ventures will increase the efficacy and sustainability of business designs as well as eliminate conflicts in model designs and implementation modalities. Sort and Brndum (2021) contend that local capacity for market competitive and comparative advantages, providing distinct value to consumer markets across regions, and limiting competition will all contribute to a workable universal approach to business models and theory integration and application in varying business contexts.

The bottom line for conceptualization, development, application, and the remaking of business theories and models, as explained by Thomsen and Brøndum (2019), exploring entrepreneurial opportunities for businesses using technology (Snihur, Lamine, and Wright, 2018), and business education for sustainable development (Hoveskoq et al., 2018), is to ensure models' efficacy and impact in organizing markets and making them competitive, profitable, and sustainable.

2.4.3 Proposed Business Strategies and Models for Turkana Livestock Marketing

The research was not founded on an existing theory or model but rather on the singularity and context of pastoral areas. Thus, it was founded on business models created by the researcher based on a wealth of knowledge regarding livestock production and marketing in Turkana and comparable pastoral area contexts.

Individuals and institutions working for livestock and livestock-keeping communities and projects collaborated to validate the business strategies and models that were developed. The Turkana County Government's departments of livestock production, veterinary services, and commerce, along with cooperatives and civil society organizations, have validated and approved the proposed business models, including their application in livestock marketing activities.

The business models are brand new and were made to improve market organization, support institutional management systems, and structure the development of livestock product values by making them more competitive and appealing in their target markets and by improving the management of livestock market yards and marketing systems, which is important for them to keep working. If these business models are used

correctly, they will help stakeholders deal with the problems of competition and market access in the livestock industry. They will do this by creating opportunities for better production, marketing, communication, stakeholder participation, and rationalization of consumer behavior. This will help Turkana's livestock marketing portfolio work as well and as efficiently as possible.

The Organized Livestock Marketing Model for Drylands. Organized livestock marketing in pastoral areas of Kenya was first introduced through the Drought Response Programme of the Arid Lands Resource Management Project (ALRMP) of the Office of the President of the Republic of Kenya, conceptualized in 1997 with the goal of improving the economies of livestock-dependent communities through market-oriented livestock production and market development.

It was hoped that the business idea would take into account the main levels of livestock production and marketing that livestock producers, traders, vendors, and consumers in the value chain need to make sure that livestock resources and products move smoothly from production zones to consumers and terminal markets.

The business idea, though, lacked a solid theoretical and practical foundation that would make it impact positively on the organization of livestock production and marketing components in the pastoral economy. The researcher made this model by defining pillars that are important for a well-organized approach to livestock development. These pillars include stakeholders, market categories, livestock production, points for adding value, the flow of products, and a balanced strategy to reduce rivalry that can happen as a result of putting the business model into place.

Crosschecking the business model intent with other similar ideas presented in the literature showed that the organization of livestock marketing activity is a good thing and a prerequisite for market access and coordination. Given the new livestock business opportunities in pastoral areas, Müller, Poandl, and Glinik (2019) and Nyariki (2017) say that a well-organized, systematic, and pragmatic business system will strengthen the business ideas of start-ups and established enterprises, create and capture value for business diversity, and strengthen stakeholder relationships, the synergy of roles, and effective business deals and transactions in an environment of healthy completion.

In the current livestock marketing context in Turkana, competitive rivalry is the primary source of stakeholder conflict exercised through gaps that exist in the market organization framework. It is also affirmed in Bocken, Rana, and Short (2015) and Andersen and Mosleh (2020) that the organization of market approaches reinforces the mapping of market stakeholders and defines their roles and interests, and that during the delivery of such models, stakeholder conflicts will be highly minimized.

Szopinski et al. (2019) argue that the model for the organization of livestock marketing activity is an innovation that makes it easier for goods, services, and entrepreneurs to move from one market to another in a way that is ethical, synergistic, and sustainable. The framework of the business model is depicted in the diagram below.

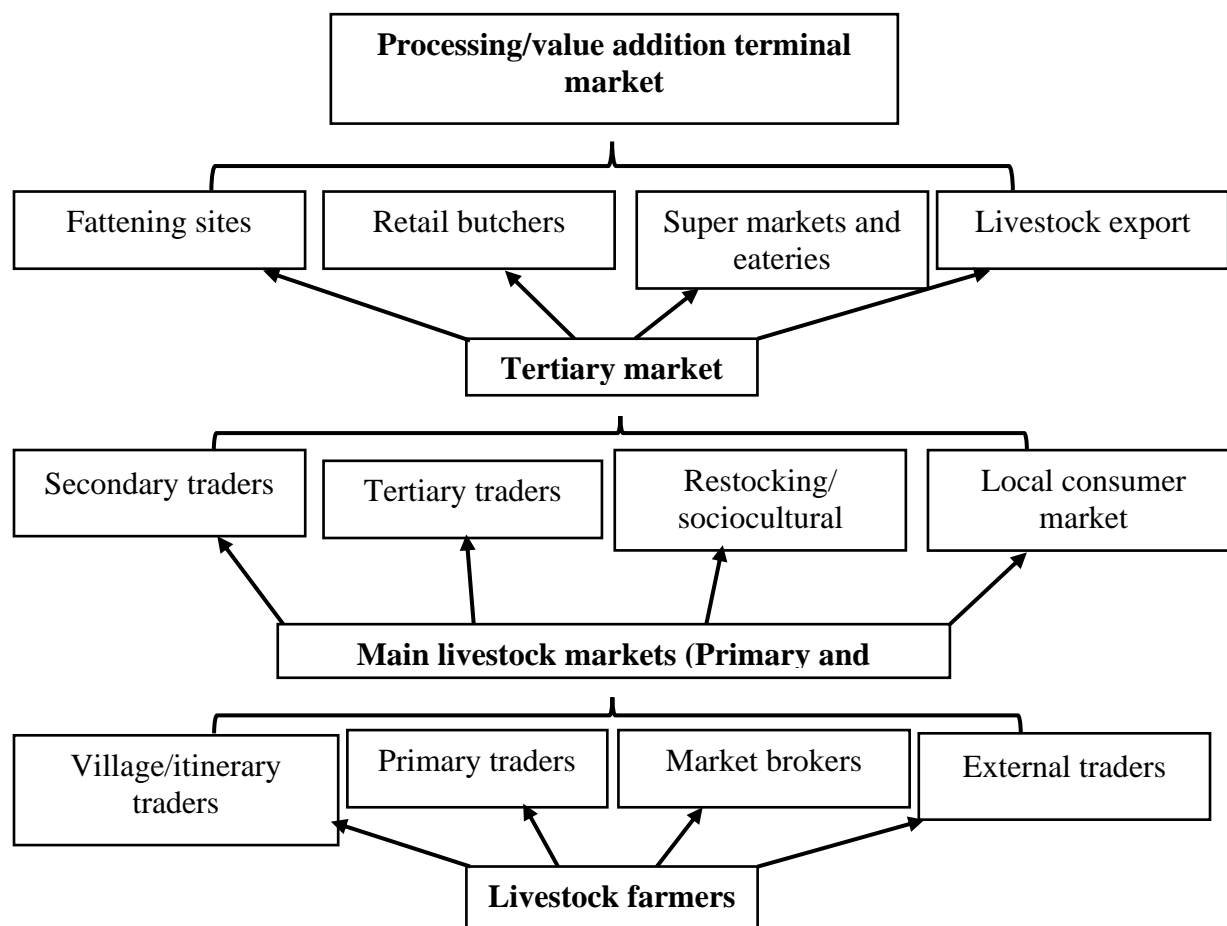


Figure 2.4.3-1 Organized Livestock Marketing Model for Drylands

2.4.3.1 Livestock Marketing Associations (LMAs) and Co-management Model. Intensive pastoralism is the dominant land use and production system in Kenya's drylands, according to studies. ASALs are home to 60% of all livestock in Kenya, or roughly 60 million animals. For many years, barter trading was the main way to market livestock. In 1996, the Kenya Livestock Marketing Council (CLMC) set up the Livestock Marketing Associations (LMA) as a way to standardize livestock trade in Kenya's drylands.

The business intent is premised on the fact that regardless of any production system, business models are developed through phases and stages, and the conceptualization of innovative business models using market opportunities will reinforce the clustering of livestock traders into associations. This will not only make them more responsible for the marketing of livestock, but it will also make it easier for them to talk to each other, which will make them less competitive with each other.

The value added to the business strategy idea by CLMC to make the LMA and Co-management model more robust and impactful in the organization of livestock trading activity in Turkana included the following: the transformation of livestock production areas; the mapping of primary markets and linking them to production zones; structuring livestock marketing activities in secondary markets and linking them strongly with primary markets as a source of supply; the mapping of tertiary, terminal, and export markets; and directing livestock business initiatives towards addressing the needs of every market category.

The business model capitalizes on linkages among market stakeholders through well-designed coordination frameworks that guarantee communication and the sharing of ideas. The sustainability of livestock market projects is at the heart of the business model, in which the government and the people in charge of the livestock market work together to make money and make decisions on an equal footing.

The business model aims to address critical market gaps such as livestock traders' capacity development in various market categories, market governance and management through the capacity strengthening of management committees, market functionality support, and performance in various markets, as well as the challenges that

inhibit healthy competition. Taking into account the facts in Ebel, Bretschneider, and Leimeister (2016) about the possible tools for developing a business model framework through the activation of learning on business models, as presented in Bitetti (2019), will strengthen the conceptualization and application of LMA and co-management model theoretical foundations for organization and better management of livestock markets in Turkana, including the creation and linking of several trader associations into cooperatives.

Through the business model, it is feasible that mentoring and coaching of market stakeholders will reinforce their knowledge, skills, and attitudes to influence the market's business agenda and the mode of livestock business delivery. The LMA's business intention corresponds to the findings of Sort and Nielsen (2018) and Wirtz et al. (2016) that a good business model can be a canvas to improve business investments and processes, and through research, business models can be improved, remade, and made more yielding.

Focusing on organizing livestock markets by making and giving power to livestock marketing associations (LMAs) builds leadership, cooperative responsibility, and harmony in the management and use of markets, which is a recipe for business success.

The LMA and Co-Management Model was subjected to rigorous review and audits through stakeholder consultative forums for validation and perfection of the business models for livestock marketing in Turkana developed through this research. During the assessment of the business model in the form in which it was piloted by CLMC, it was found that approximately 48% of livestock markets successfully implemented the strategy in its entirety.

Cartels, competitive rivalry, and bad market management and governance could still be practiced since the business model had gaps, which included a lack of robust coordination, partnerships, relations, and governance considerations, which have been included in the improved version of it. Livestock stakeholders in Turkana believe that the business model will help structure and organize market engagements and help restore healthy competition in different parts of the market safely.

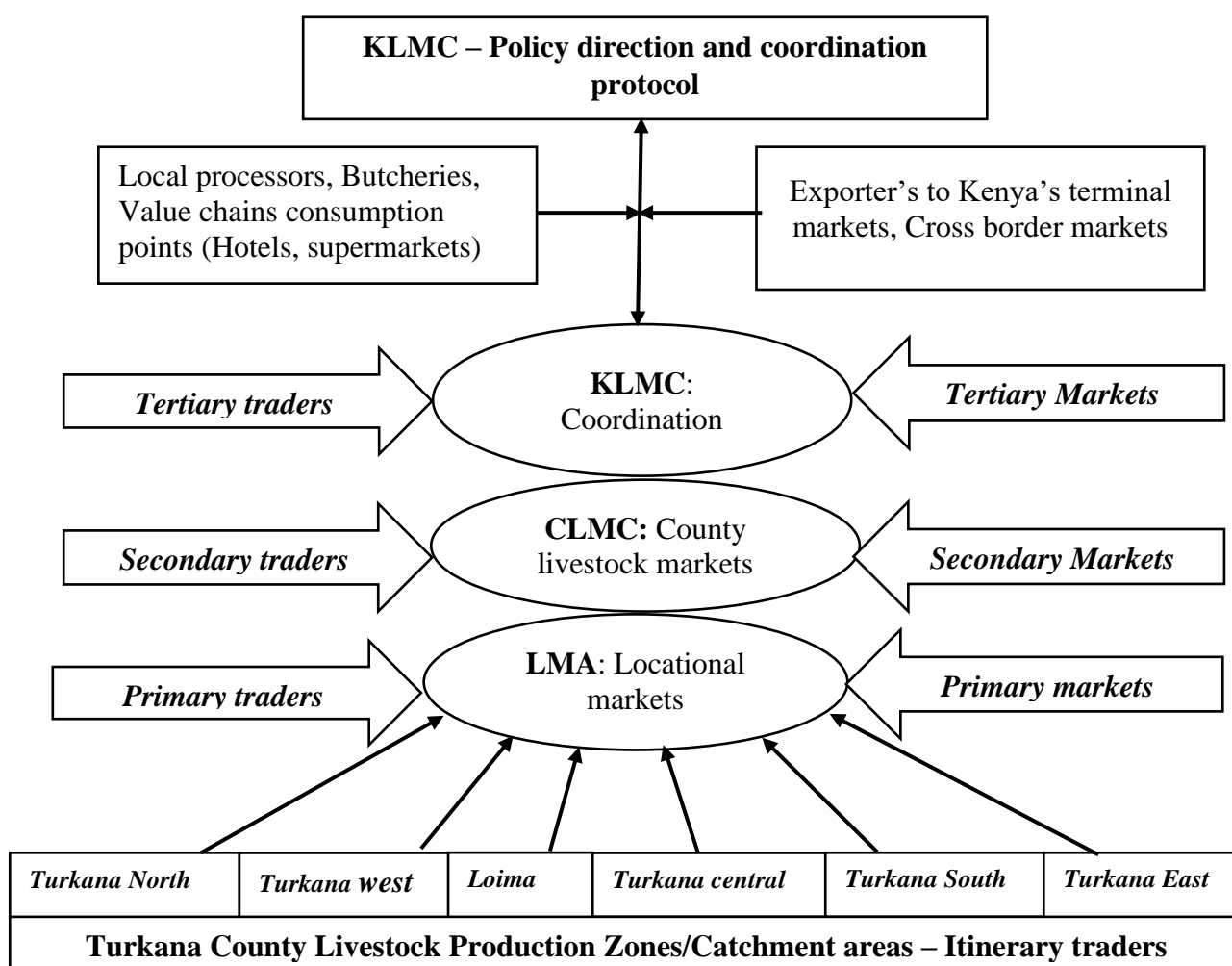


Figure 2.4.3-2 LMA and Co-management model (Author made)

2.4.3.2 The Meat and Livestock Assembly Model. Through the government of Kenya's benchmarking programs, the Meat and Livestock Assembly Model idea was adopted from Indonesia in 2017. It is a new idea in Kenya's pastoral regions. The goal is to form livestock business corporations and set up a way to collect livestock from production zones and disseminate them through primary and secondary markets to meet the needs of tertiary, consumer, and export markets.

The business model also connects the value chains of meat products from slaughterhouses to consumption points. The model's strength is in the assembly of live animals for the market as well as the marketing of meat products to a variety of consumer markets across the country and abroad. The variety of this business model's design makes it possible to change and grow livestock business ideas, as suggested by Evans et al. (2017), who say that good business modeling makes it easier to get to markets with reliable and competitive products.

To speed the assembly of live animals, the model encourages farmer-to-farmer trading with specializations in areas such as breeding and fattening, resulting in a high degree of farmer-to-farmer business relations. The model also includes rural traders who are self-employed and have good business abilities and experience, as well as a good understanding of how to link to viable marketplaces. Most of these traders have substantial amounts of money and ways to get things done, which lets them buy animals from farmers and get them to market yards and slaughterhouses.

On the ground, empowering cooperatives entails collecting livestock and meat value chains from farmers and butchers and transporting them to terminal markets at a reasonable cost. Using the results of Mossa, Tucci, and Afua (2017) and Bocken, Rena,

and Short (2015), business model research and value mapping will be used to strengthen the model's application to farmer-to-farmer and trader relationships and ensure a steady supply of livestock and livestock products in the defined markets.

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The business model facilitates the formation of livestock business cooperatives in pastoral areas, allowing them to expand their offerings to include a broader range of services, such as frequent sales of meat products to processing companies, allowing for the development of more meat value chains and finished products. The order buyers will buy fattened animals from farmers, local dealers, auctions, and terminal markets on behalf of slaughterhouses and meat processors. They will be paid for this service.

The commissioning agents will facilitate livestock trade between business partners in the marketing system who have commission rights. Ebel, Bretschneider, and Leimeister (2016) and Spaniol et al. (2019) say that strengthening business relationships and using a pragmatic approach to define business strategic areas will speed up business cooperatives and mergers in the mobilization and communication of the supply of livestock and livestock products to different markets, as shown in the Meat and Livestock Assembly model.

In public auctions, the auctioneers in the business model sell livestock and/or deadweight meat to the highest bidders. Market stakeholders interested in fattening, breeding, or slaughtering animals will purchase them at an auction where traders, rather than the general public, are almost entirely present. Different types of auctions may be held in market areas, with some auctions catering to breeders and people looking for fattening animals. Other auctions are attended by retail butchers, meat packers, and traders, among others. As part of the business plan for the livestock market, public marketplaces are also included.

Through the business model, auction markets will be established by the government and affiliated with commercial business groups in order to increase revenue from livestock sales and slaughters in the new facilities. The public markets will be overseen by committees made up of representatives from umbrella organizations. Also, the business model is based on the idea that some meatpackers (businesses) have their own buyers for livestock and are close to terminals or auction markets. This would mean that meat and livestock assembly would be done in the same area.

Activating model learning and identifying areas for strategy remaking (Bitetti, 2019), as well as unlocking business innovation through the capitalization of existing and emerging business opportunities (Thomsen and Brøndum, 2019), will improve business model performance, particularly in tertiary, terminal, and export markets.

Meat and Livestock Assembly model for pastoral areas						Step 8: Exporter's/ international trade	International trade
					Step 7: Meat processors and packers	Terminal market	
					Step 6: Terminal public markets		
				Step 5: Auctions/ tertiary markets	Tertiary market		
			Step 4: Order buyers/brokers				
			Step 3: Local cooperatives	Primary and secondary markets			
			Step 2: Rural traders				
Step 1: Livestock farmers						Foundation	
Operational livestock production and marketing systems							

Figure 2.4.3-3 Meat and Livestock Assembly Model (Author Made)

The Management of Livestock Market Yards Model. Turkana livestock marketing activity is effectively transitioning from barter to conventional marketing systems, which include the engagement of specified market stakeholders, the establishment of market facilities such as arenas and infrastructural amenities, and the structuring of market segments. However, the legal framework for livestock marketing in Turkana is not yet in place.

The management model for Turkana County Livestock Sale Yards is written in the form of a bill that spells out the contents and operations of the Turkana livestock marketing framework. The goal is to use the law to organize, structure, and stop wrongdoing in livestock markets.

The legal framework stipulates that the LMAs, under the supervision of the CLMC, are responsible for managing the sale yards on a day-to-day basis (with an emphasis on

market days and auction days), ensuring repair and maintenance of the market infrastructure, providing water and sanitary facilities, and safeguarding and protecting the market land of all market categories. The law also recognizes the need for traders' trainers, overall sale yard management committees, and conflict resolution committees, as well as sale yard monitors, meat inspectors, and veterinary staff to provide clinical services.

Establishments, administration, logistics, animal welfare standards, trading systems, stakeholder capacity support, and the use of policy and regulations to foster compliance, ethics, and guidance in the development of livestock markets in Turkana are all part of the business model and legal framework contained in the Sale Yards Bill. Wirtz and Daiser (2017) say that the integrative business model conceptual framework makes it easier to include existing knowledge and the management of livestock markets in the theoretical and practical design of business management frameworks.

Kuratko, Bloodgood, and Hornsby (2017) argue that business ideas need to be legitimized within an entrepreneurial system, so incorporating the legal domain into livestock marketing business models makes sense. The main goals of this business model are to make sure that all parts of a livestock market are managed well, to improve governance, and to stop people from taking advantage of weak leadership and bad administrative systems. The diagram below depicts the contents of the Sale Yards Management Model.

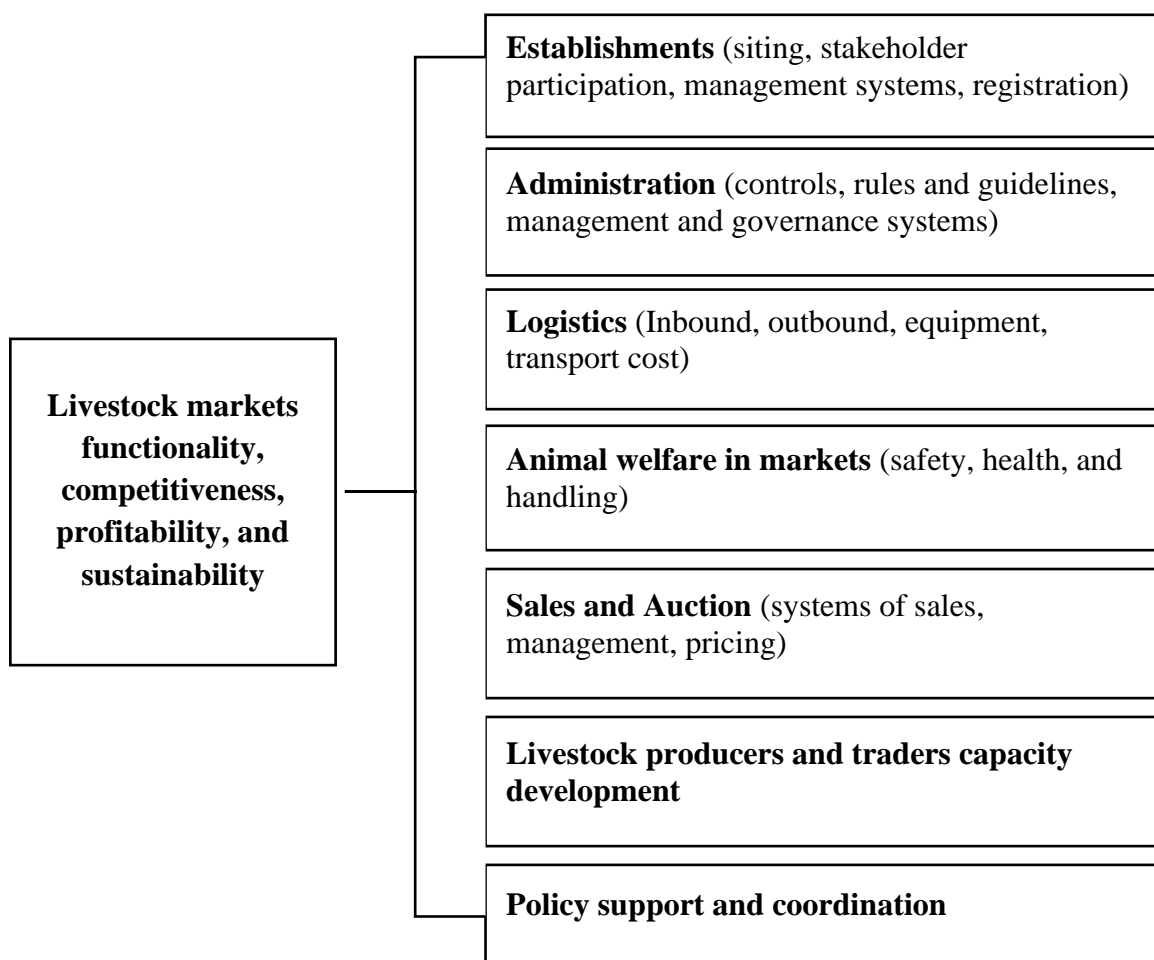


Figure 2.4.3-4 Market Yards Management Model (Author Made)

2.4.4 Summary of Literature Review Findings

According to the literature reviewed for this study, the livestock industry is undergoing rapid transformation, particularly in developing economies. As the world rapidly evolves, so too do consumer demands and preferences. The competition for agricultural factors of production, such as land, water, labor, knowledge and skills, feed, and management, is intensifying as a result of limited production space, a sluggish cash economy, and intense rivalry in numerous market segments.

Livestock farming is a key part of the economies of many countries and economic regions. It also brings prosperity to communities that depend on livestock. Capitalization is needed for livestock value chains to make the most of market opportunities in livestock production catchment areas and market categories so that livestock production and marketing businesses can be profitable, competitive, and sustainable.

Research is crucial for evaluating livestock production efficiency, marketing system functionality, and risk management strategies in order to ensure that the livestock sector keeps pace with current changes. In the majority of the world, regulatory frameworks, farming systems, and standards make livestock production and marketing more stable and attractive to governments, businesses, vendors, and consumers. However, traditional farming systems, resource economics and management systems, limited use of conventional methods, and insufficient policy and standards for livestock farming all contribute to a decline in production output and product acceptability in potential markets in Africa. Nonetheless, the continent's vast natural resources provide numerous opportunities for livestock production.

Numerous production impediments hinder the growth of the gross domestic product and the per capita growth forecasts of states and regions. Slow and disorganized is the rate at which economies convert agricultural subsector challenges into production opportunities. Every market segment can be manipulated because of intense competition, rivalry, and poor price discovery; deliberate imbalances between market forces; the strong influence of non-market forces; and the use of ineffective and/or low-yielding livestock development policies.

Kenya's agriculture continues to contribute significantly to the nation's economy, food and income security, and nutritional requirements for the wider population. Extensive, intensive, and semi-intensive are context-based livestock production systems promoted in Kenya. However, dryland marginalization, the fragility of the cash economies of many livestock-producing communities, long-term subsistence production, internal and cross-border insecurity, drought, and the seasonality of production resources all impede livestock production and marketing initiatives in the mentioned production systems, but more so in extensive systems where pastoralism and stringent coping mechanisms are applied for the survival of both people and livestock as well as the environment.

The poor performance of numerous primary and secondary markets can be mitigated by empowering and transforming livestock producers, retailers, and consumers. To build a competitive and profitable livestock sector in Kenya, it is important to add value to production systems and breeds, connect production to markets, and use money from livestock to grow and diversify businesses based on livestock. All these avenues can be well achieved and sustained if livestock production and marketing intentions are integrated into a strategic livestock development agenda. The enhancement of stakeholder knowledge, skills, and attitudes can catalyze the cherished livestock development sustained through partnerships and investments.

Kenya County Governments in ASAL regions would increase investments, systems, and policies crucial for the protection of livestock resources and markets; empower producers and vendors; institutionalize pastoral livelihood systems; and coordinate livestock-based programs, similar to the policies of Ethiopia's Pastoral Development Offices and the objectivity of the livestock development policies. Extreme

rivalry and competition hurt the performance of any market, and structured marketing systems, policy frameworks, and market regulations are the best ways to prevent this from happening.

There is a need for an open cross-border livestock trade capable of uniting livestock traders and fostering peaceful coexistence for livestock-keeping communities on both sides of international borders. Strategic corridors for producing and selling livestock across borders in East Africa will make sure that different markets have enough livestock and merchants to facilitate trade. The utilization of marketing data and ICT devices and systems enables livestock producers and other business stakeholders to make sound business decisions. For livestock markets and places to buy products, livestock production and marketing must be strong, competitive, and profitable.

In between the drylands and cities, colonial authorities imposed quarantines and restricted livestock movement. Governments and lobbying groups need to keep pushing for these rules to be lifted. This would give livestock farmers and traders access to and competition in multiple regional markets. The livestock production department of Turkana, the chambers of commerce and industry-Turkana chapter, and livestock marketing institutions will dismantle livestock industry cartels. This will increase the effectiveness, openness, and accountability of systems and strategies for dryland livestock markets. The East Africa Community (EAC) and the Intergovernmental Authority on Development (IGAD) should be honored for their work to build regional markets in the area so that local businesses can sell their goods there.

Mapping livestock markets with the help of trader associations and policymakers would bolster vital partnerships for the development of prized pastoral marketing systems. Establishing stakeholder relationships in production and trade is essential for the stable and long-term management of supply and demand forces across multiple market segments. Appropriate profiling of the effects of humanity's social, economic, political, technological, legal, and environmental aspects strengthens marketing strategies in response to external market forces.

Risk management agencies need to make sure that livestock insurance programs work together to protect livestock producers and investors from production and marketing risks like drought, disease, drops in transaction prices, and market destabilizations. Risk-free business models, a lot of transactions in each livestock market, coordinated marketing stages, economies of scale, and adding value would encourage livestock producers and traders to take part in livestock-related businesses and give those businesses the ability to meet customer and consumer needs.

The critical component of the literature review is the knowledge that corresponds to the study objectives, which include the need for defining the socioeconomic characteristics of market stakeholders as a key determinant of market access through capacities, the importance of competition and management strategies, regulation of market and non-market forces, and the use of appropriate business models to structure and guide the implementation of livestock trade initiatives. The objectives of such pillars for achieving and sustaining access to markets are outlined in the next section.

According to the literature reviewed, dry lands are the leaders in extensive livestock production. Turkana is the largest region in Kenya and has the most livestock and the richest ecosystems. This means that with the right interventions and investments in livestock production and marketing, the people who keep livestock and the merchants in Turkana can take part in a variety of livestock-based businesses that will not only help them grow their businesses but also give them access to other markets locally and internationally.

CHAPTER 3: RESEARCH METHODOLOGY

The methodology chapter is critical to the research process because it results in a systematic process of data collection and logical analysis, which is essential for determining the state of the studied phenomena (Bashir, 2018; von Benson and van Blerk, 2017; Chiblow, 2020).

For the purposes of this research, the methodology chapter discusses the research design and approach chosen, the study population identified, and the sampling procedures used to select organizations and individuals to participate in the study. The chapter also talks about study materials and the setup of research instruments like questionnaires and study schedules, as well as the ways to make sure that research instruments and the data they produce are valid and reliable.

The operational definitions of constructs and variables, as well as the study procedures and research methods chosen, are all well developed. The chapter also discusses data analysis and presentation techniques using descriptive and inferential statistics, as well as qualitative analysis procedures for qualitative data. The research ethics principles for researchers and research participants are presented according to the ethics plan approved by the Unicaf University Research Ethics Committee (UREC). This includes how each ethical principle is applied in the research study.

3.1 Research design

3.1.1 Exploratory Research Design

Research design as an overall strategy for integrating the different components of the study in a coherent and logical way was essential for the process of addressing the research problem by guiding the collection, measurement, and analysis of data, as stated in Kothari (2004), Berger (2015), and Johnson et al. (2019). The market research combined two types of research designs, i.e., exploratory and descriptive.

The exploratory research design as presented in Swaminathan and Mulvihill (2019) and Kothari (2004) on learning from the subjects and Pereira's (2019) study on community socioeconomic aspects was meant to enable the in-depth investigation and understanding of socioeconomic and cultural aspects of the study phenomena through the maximum engagement of study participants, especially the livestock producers and traders from livestock production areas and market segments in rural areas. An exploratory design was used to thoroughly determine how, when, and where the problem occurred, as well as the basis for causal relationships.

Given the traditional livestock production context of the study population, the culture, and the level of livestock economy in Turkana, the rationale for the use of an exploratory research design included a greater degree of flexibility and freedom that the researcher and study participants needed in order to engage in a free environment that could lead to conversations towards understanding and analyzing the study problem (Alexander, Pillay, and Smith, 2018; Rankin, 2017a).

The exploratory research design is also economical in terms of how a research process is conducted. It lays a strong foundation for replicating the study theme and processes in the future in the same or similar production and marketing contexts. Since the research design allows for a better understanding of topics that have already been studied, like competition management in livestock markets in pastoral areas. It shows ways to learn about the needs of the people who produce livestock, the types of traders, and the role and performance of the different market segments in building and sustaining the pastoral market economy.

To minimize the gaps associated with the exploratory research design, such as subjectivity of results and minimal inferences (Kothari, 2004; Eastwood, 2021; Rankin, 2017b), much focus was put on the scope of data collected, fulfilling each study objective through concrete findings and results. More emphasis was also put on the analysis of data generated from exploration research.

Qualitative data analysis processes, data clustering, and synthesis techniques (as elaborated in Rudrum, 2016; Alexander, Eppler, and Comi, 2020) yielded significant results. The study sample was also increased to improve the scale of the data and findings with a high level of representation. Information from recently published scholarly literature was used to back up the data that came from looking into the study problem. The diagram below depicts the steps of an exploratory research design as implemented in the study.

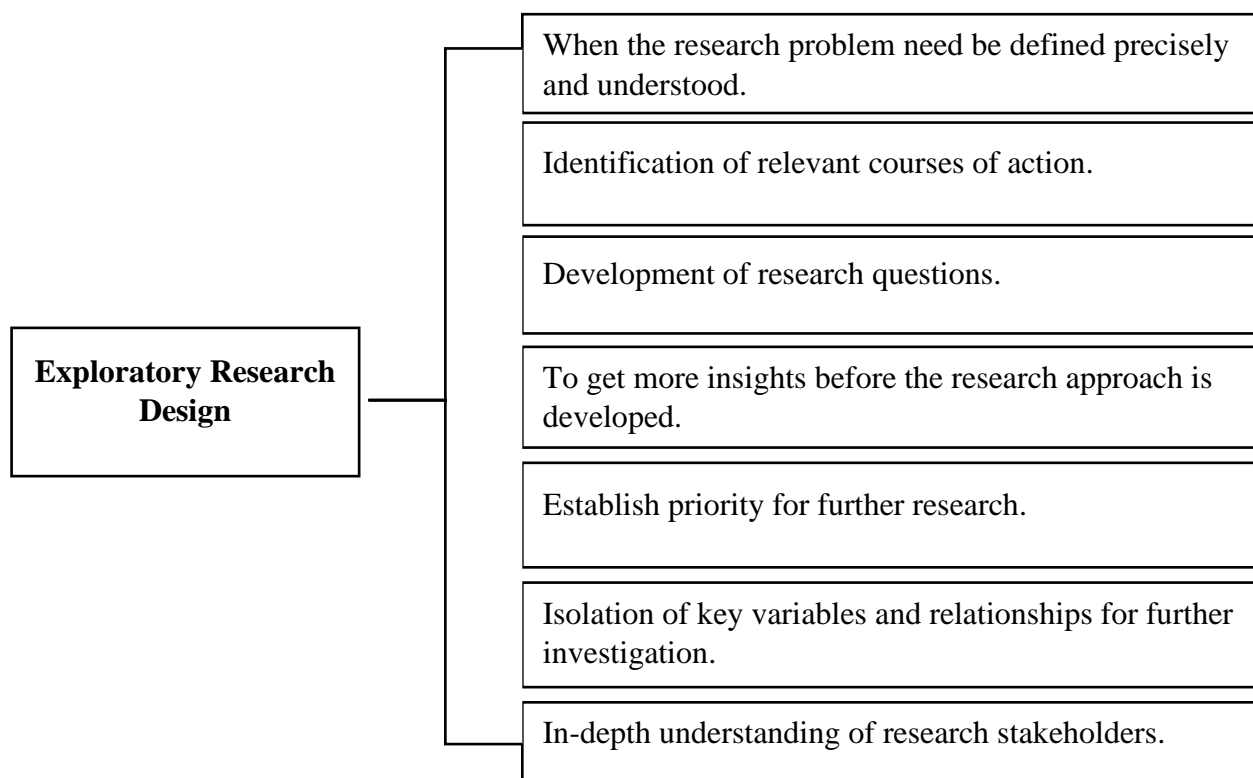


Figure 3.1.1-1 Exploratory Research Design for the Study

3.1.2 Descriptive Research Design

A descriptive research design was integrated into the research framework to facilitate the integration of a range of qualitative and quantitative research methods to collect data that aids in accurately describing a research problem, i.e., competitive rivalry effects on livestock market access in pastoral areas.

The research design supported the quantitative research critical for the quantification of the research information regarding the variables of study (Biddle & Schafft, 2015; Babones, 2016). As a cross-sectional study, the quantitative research design made it easier to look into the study problem and talk to the people who were affected by it.

The descriptive research design took the best parts of the exploratory design and made a solid foundation for more research by making it easy to see where more and deeper research needs to be done, as presented in Popa and Guillermin (2017) and Cain et al. (2019). The application of the research design paradigm enabled the definition of the socioeconomic characteristics of the study respondents as per the first objective of the study.

Using the research design statistical capability, it facilitated the measuring of data trends on matters of livestock production, marketing, and consumption of products in the market. The descriptive research paradigm also helped with the comparative analysis, which made it easier to understand how the answers from respondents were used to triangulate and verify data from different sources.

A descriptive research design could allow the research to be conducted at different times. This enabled the research study to be conducted amidst the COVID-19 preventive and management protocol put in place by the government of Kenya. The field research was guided by Asante et al.'s (2021) and Falzon's (2015) experiences on conducting descriptive research. As suggested by McGrath et al. (2019) and McGarrol (2017), the research tools that could be used for this research paradigm could be used remotely to collect data from hard-to-reach research sites. In the end, many different types of participatory data collection tools were used to get both quantitative and qualitative information from the research sites.

The data collected was of high quality, and descriptive research was quick to perform with minimal costs (Braun et al., 2019; Maxwell et al., 2020). The research framework reinforced the research information, strengthening the decisions made in the

thesis pertaining to recommendations and actions to be undertaken to address the market challenges relating to access. Through it, inferences were made, which would make the study beneficial to wider pastoral production contexts as the study results are more objective and real. The diagram below contains critical steps undertaken in the descriptive survey process.

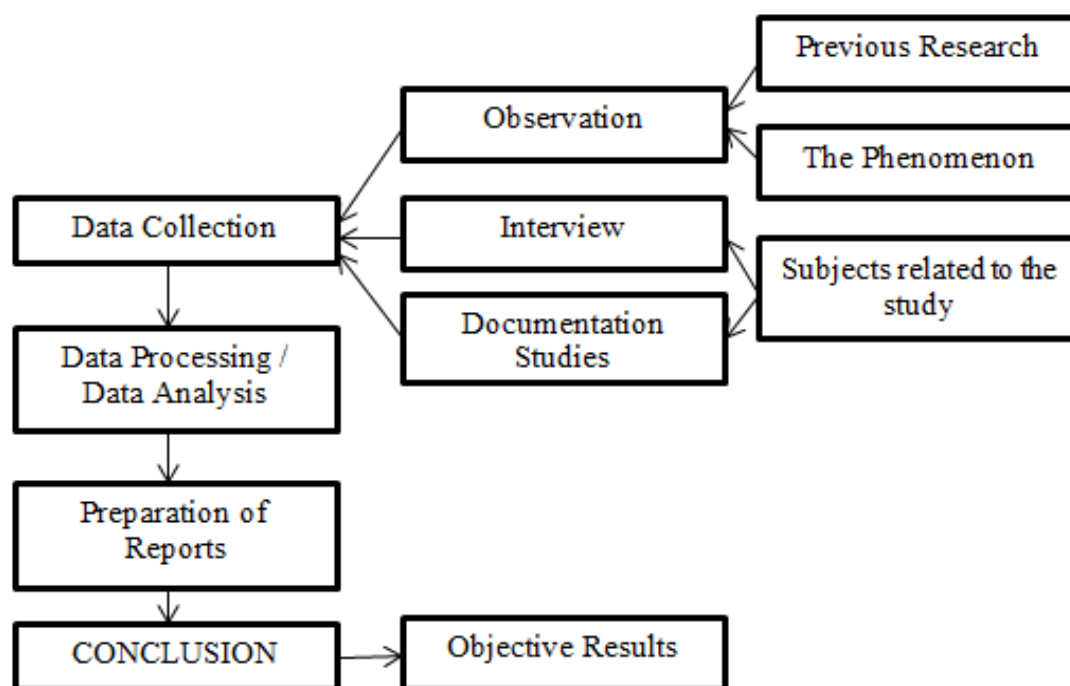


Figure 3.1.2-1 Descriptive Research Design Framework for the Study

3.1.3 Application of the Research Designs

The research framework combined exploratory and descriptive research techniques in three phases. The first phase involved conducting a qualitative study with primary respondents (primary livestock traders) individually and in focus groups. In comparison, phase two involved conducting a quantitative study with secondary

respondents via a closed and open-ended questionnaire administered one-on-one and remotely to secondary livestock traders.

An additional tool (the study schedule) on policy-related questions was administered to tertiary respondents, who were government officials and personnel from civil society organizations taking part in livestock development programs. Qualitative statements were appropriately captured during this phase to supplement the quantitative data gathered in phase two of the study. The study used more thorough research methods that could use different kinds of data to look at a wide range of things about livestock production, market access, and opportunities.

In the study's dominant qualitative section (Peltier, 2018; Cheek et al., 2015), mixed methods were used to gain an understanding of the phenomenon's social dimensions. The research study used a mixed-methods approach called "equal status triangulation" to make sure that qualitative and quantitative research methods were combined to make a whole research result that accurately reflected the study population.

Given the objectivity of the research, a thorough examination of the research topic and the formulation of strategic conclusions and recommendations were meant to define the mitigation plan for the impediments that are reducing livestock development outcomes in pastoral areas on a continuous basis. For purposes of addressing the research objectives, mixed and pure quantitative methods were therefore used to get a wide range of quantitative data, as presented in the diagram below.

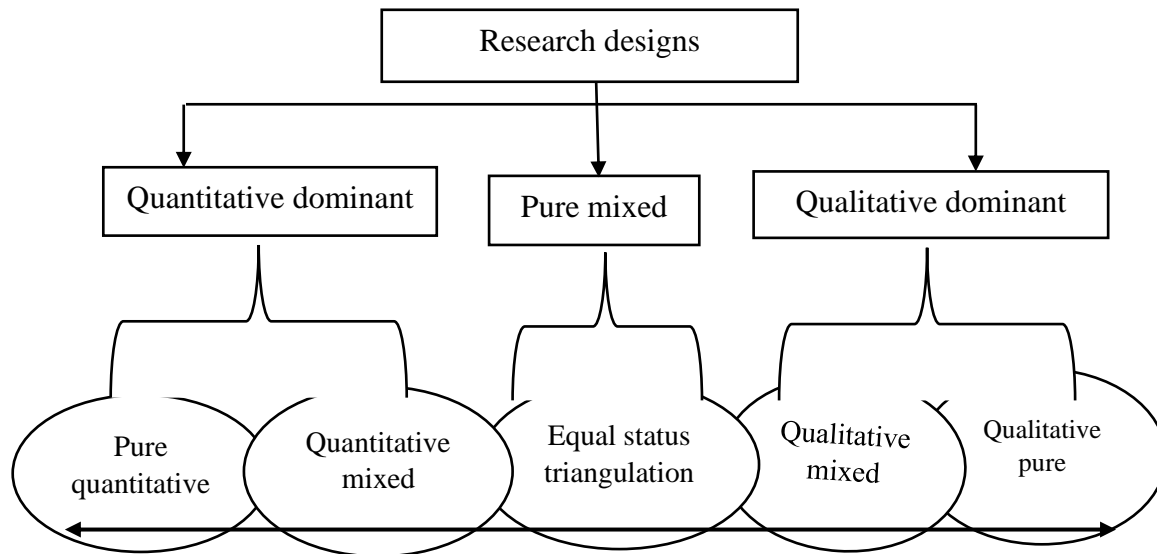


Figure 3.1.3-1: Application of research designs framework (Author made)

3.1.4 Research Approaches

The mixed-methods approach was the most appropriate for elucidating the research study's topic and objectives. The research approach is increasingly being used in research projects to exhaustively investigate the phenomena under study both quantitatively and qualitatively (Gutterman et al., 2019; Babones, 2016).

The interdependence of the dominant quantitative and qualitative research elements demonstrates the importance of a critical interaction between constructivist-poststructuralist and postpositivist theoretical perspectives in order to conduct holistic research (Byrne et al., 2021; Reid et al., 2021). Clustering, coding, narrative, and numerical presentations of study results led to a strategic synthesis of research ideas, findings, and conclusions related to study themes, research objectives, and research questions.

Combining quantitative and qualitative research methods in the same study enabled the generation of valuable data and the confirmation and corroboration of facts via triangulation, facilitating the development of new modes of thought. Understanding research questions from a variety of perspectives enabled the research output to be strengthened and enriched. The mixed methods research paradigm estimated and minimized potential errors, allowing for extensive data probing, simplifying research processes, decomposing research facts and findings, and promoting innovation and truthfulness in research progressions.

In the strategic view of the research study, quantitative and qualitative research methods were combined with strong data relationships. The mixed-methods paradigm that was chosen for the research study is shown in the diagram below.

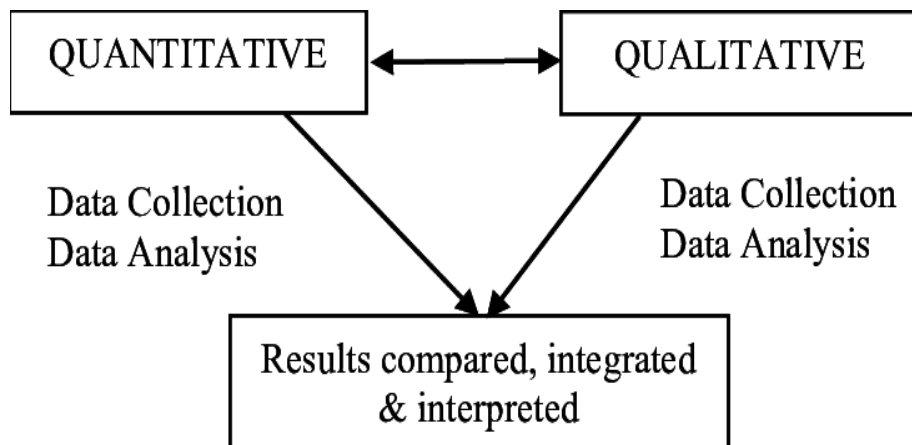


Figure 3.1.4-1: Mixed-methods research paradigm

3.1.4.1 Application of Mixed Methods Research Approach. The mixed-methods approach's qualitative components provided critical content for practical application of the research framework, provided specific insights for balancing study perspectives, eliminated bias, and facilitated extensive interrogation and examination of study samples applied in the research with field experiences presented by Drawson et al. (2017), Datta (2018), and Sanscartier (2018), among other publications. Through the research approach, individual and group experiences were transformed into usable data.

The research structure was created to be fluid and adaptable with a minimum of rigidity, resulting in the achievement of the study objective while remaining within the bounds of predictive quality and authentic research. The research involved human subjects theoretically interacting with livestock resources and the natural and physical environment.

Observations, interviews, and focus group discussions (FGD) were used to look into these interactions. This allowed the research questions and theoretical framework to include parts of the theory, a case study, and a statistical design. Given the traditional ways of doing things in pastoral areas and the traditional ways of raising and selling livestock, the speculative nature of qualitative research helped to consolidate and organize knowledge, which made systems for producing and selling livestock more efficient and effective.

The case study method of qualitative research was used to analyze the study phenomenon, i.e., competitive rivalry in the livestock marketing context of Turkana. The use of a case study approach facilitated the development of in-depth and exploratory procedures for interrogating study variables, which were determined through the

examination of research objectives. Even though the study was mostly about the Turkana pastoral region, the parts about trading livestock and getting to markets were also relevant to other pastoral areas in Kenya and Eastern Africa. This made it possible to look at the relationship between how livestock is produced and how it is sold.

The quantitative research part resulted in the collection and analysis of data in a short period of time using readily available quantitative research techniques. The study's findings and recommendations were found to be reliable and repeatable in similar contexts. With its ability to do focused research based on available data, the quantitative approach was also used to do research remotely in inaccessible areas. It was done on time, directly, and accurately, even when strict anonymity was needed.

Since both quantitative and qualitative research methods have their own limitations when used alone (Popa and Guillermin, 2017; Sanscartier, 2018), adopting a mixed-methods research paradigm helped solve a lot of problems with data collection and analysis. During data collection and processing, the most important parts of sequential and concurrent mixed methods were used.

Sequential exploratory elements included giving study participants qualitative and quantitative research instruments, where data were well combined and integrated, and relationships were discovered. Concurrent mixed methods, particularly concurrent triangulation, were incorporated into the research study via data amalgamation in instances where the research design defined relationships between variables of interest precisely (Kothari, 2004). Concurrent triangulation also aided in resolving inconsistencies in the relationship between qualitative and quantitative data at the point of fusion and during the consolidation of research outputs as depicted in the figure below.

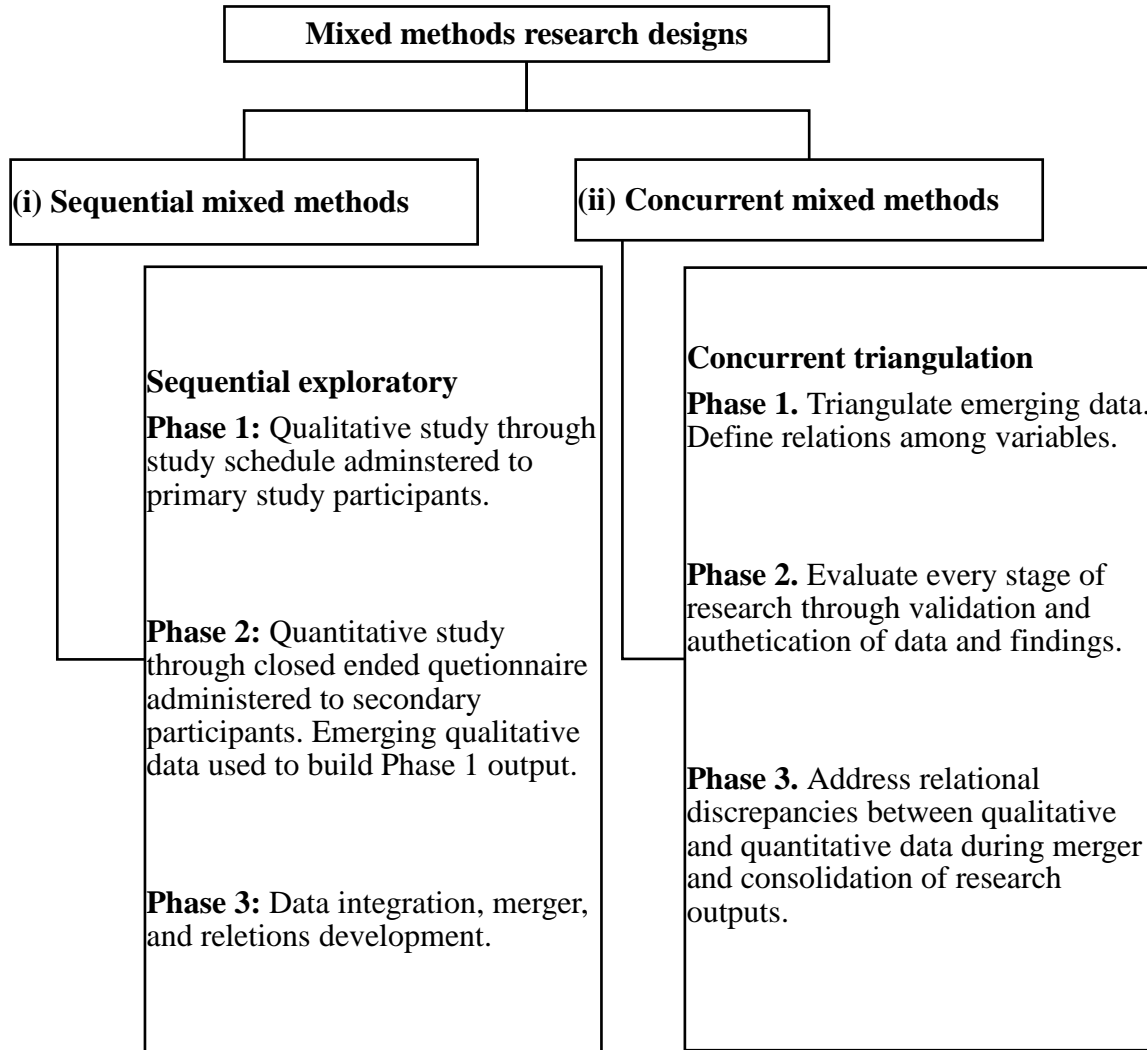


Figure 3.1.4-2 Sequential and Concurrent Mixed Methods (Author made)

3.1.5 Population and Sample of the Research Study

3.1.5.1 Description of the Study Population. The researcher identified three distinct study population categories for the study. To begin with, livestock producers are pastoralists who breed and maintain livestock in production zones (Mburu et al., 2017). Several of them became itinerant traders, promoting livestock trade in pastoralist settlements and villages through barter trading and minimal cash transactions. Potential itinerant traders have enhanced their livestock marketing activities to the point where they are now primary traders at their communities' primary markets.

Second, the most advanced livestock traders in the country are the ones who buy and sell livestock in the secondary market. Through interaction and business relationships with tertiary traders, they mobilize livestock resources from primary markets to sell at secondary markets while also exporting some to Kenya's external and terminal markets. Third, in Kenya and the Counties, the government and civil society organizations (like government departments, regulatory bodies, and private businesses) plan and carry out programs and policies to help livestock development and policy support.

Livestock development institutions provide critical services that contribute to the improvement of livestock production and marketing. They are especially interested in livestock production, veterinary services, rangeland management, public health, marketing livestock, building the capacity of stakeholders, research, making policy, and advocating for the wellbeing of livestock dependent communities and livestock based merchants.

Sample Size Estimation and Relevant Characteristics. In Turkana County, out of the 26 established livestock markets at the time of this research, nine (9) primary and four (4) secondary markets were fully operational, according to the researcher's pre-assessment of market performance based on market functionality and access. Three out of four secondary markets were chosen for research purposes.

The Lodwar secondary market was intentionally excluded because multiple students and researchers were conducting scientific investigations in the market at the time of the sampling of the research sites, all of which targeted the same study group (secondary traders in the Lodwar market and livestock development stakeholders). If this research had been done with the same group, it would have led to research bias, duplication of study and results, and fatigue among research participants.

As found in markets membership records, thirty (30) registered livestock traders operated each of the primary livestock markets. Thus, the study population consisted of two hundred and seventy (270) traders for the nine selected markets. Each of the three (3) functional secondary livestock markets in the county was operated by traders ranging in size from 100 to 250, but on average, the traders registered with LMA and the most active were sixty (60) per market selected for the study, making a total of one hundred and eighty (180) secondary livestock traders.

With the government included, there were twelve (12) organizations focusing on livestock development in Turkana. They support livestock production and marketing; provide extension services and emergency response services; support resilience building; and promote research and learning among communities, groups, and organizations with focal points.

3.1.5.2 Sample Frame and Design Criteria Relationship. The probability sampling method was used to compute the study samples. For primary and secondary markets, sampling (lists of active traders) was used. A confidence level of 95% and a margin of error of 2% were used to determine the sample sizes. Using the corresponding percentage of a sample size for the entire population, the random sampling technique was finally used to select the sample for the study per market category.

243 participants (of 270) from nine primary markets and 168 participants (of 180) from three secondary markets comprised the computed sample sizes from the primary and secondary study populations, respectively. In the three chosen markets, the sample size for primary participants (primary market traders) was 90% of the primary trader population, while the sample size for secondary participants (secondary market traders) was 93% of the secondary trader population.

The primary and secondary study samples were drawn to ensure that they were representative of the study population as a whole. From the sample statistics, 94% of study respondents operate in primary and secondary livestock markets. While livestock traders engage in actual animal trading, the significance of sample sizes ensures a sufficient, holistic, and valid data set. Traders were primarily targeted as they are the prime stakeholders in the livestock market to account for market competition and rivalry, as well as the severity of other operational challenges impeding market access efforts. Below is the sampling frame used to derive the study samples from the study populations of interest.

Table 3.1.5-1: Sample frame (Primary, Secondary and tertiary participants)

Study participants	Population size	Preferred Margin of error	Desired Confidence level	Sample size	The estimated minimum response rate
Primary participants	270	2%	95%	243	50%
Secondary participants	180	2%	95%	168	50%
Tertiary participants (Government & NGO workers) n=24 selected purposively (from 12 main organizations in the Livestock trade. 2 persons per organization)					

With their diverse knowledge and extensive experience in livestock trade and management of livestock market operations, livestock traders provided substantial information important for the investigation of all the research study's objectives. All registered traders, men and women alike, were over the age of 18. The statistical sampling procedure culminated in study samples that were representative of the study populations. The statistical sampling technique used ensured gender balance and inclusion in the sampling process, as well as the study's high significance.

Purposive sampling was deemed to be one of the most cost-effective methods for facilitating the recruitment of qualified and experienced tertiary respondents for the study. Purposive sampling was also appropriate because only a few officers were available to serve as primary data sources. Purposive sampling was also intended to identify trustworthy study participants who could apply theory, practice, and experience to provide

valuable insights for comprehending and consolidating data generated by primary and secondary participants into logical, concrete, and reliable study findings.

Twenty-four (24) officers were chosen as study participants, 11 (46%) of whom were female. The officers chosen represented twenty-three (23) areas of specialization in the field of livestock and related disciplines such as livestock production, marketing, policy, information systems, commerce and industry, extension, and enterprise development, among others, all of which were critical in consolidating the research data provided by primary and secondary study participants into solid facts and findings for addressing the study objectives.

The table below shows the twelve (12) organizations that are actively working on Turkana's livestock development agenda, as well as the gender and area of expertise of the people who were chosen to take part in the study as "tertiary participants."

Table 3.1.5-2: Government and CSOs organizations and tertiary study participants

Organization/Agency	purposively selected participants	Sex	Specialization
County Department of Livestock production	Participant 1	F	Livestock production
	Participant 2	M	Livestock marketing
County Department of veterinary	Participant 3	F	Veterinary surgeon
	Participant 4	M	Epidemiology
The County Department of Trade	Participant 5	M	Livestock trade
	Participant 6	M	Trade policy
CLMC	Participant 7	F	Marketing management
	Participant 8	F	Information
Mercy Corps	Participant 9	F	Pastoral livelihoods
	Participant 10	M	Livestock marketing
TUPADO	Participant 11	F	Livelihoods
	Participant 12	M	Projects management
LMS	Participant 13	M	Market research
	Participant 14	F	Data management
FAO	Participant 15	F	Market research
	Participant 16	M	LMA support
NDMA	Participant 17	F	Drought management
	Participant 18	M	Early warning
UNDP	Participant 19	M	ASAL projects
	Participant 20	M	Market development
APAD	Participant 21	M	Donkey welfare
	Participant 22	F	Livelihoods
GIZ	Participant 23	M	Training
	Participant 24	F	Grants unit
12 Organizations	24 participants	M(13), F(11)	23 specialties

The researcher recruited study participants following approval from the Kenya National Commission for Science, Technology, and Innovation (NACOSTI) and the Turkana County Directorate of Livestock Production (CDLP), which connected the researcher to the Sub County Livestock Development Offices, the County Livestock

Marketing Council (CLMC), and the Livestock Marketing Associations (LMAs) responsible for coordinating and managing operations at the sampled livestock markets. The researcher was put in touch with the office of the County Commissioner, which is the office of the Kenyan president in the Turkana region.

Participants in the study were chosen from lists of registered traders from each sampled market. Tertiary respondents were selected on the basis of their expertise in livestock production in Turkana County and the cross-border pastoral regions and markets. Only people over 18 were eligible to take part in the research, as were people who worked on livestock production and marketing projects and people in government and civil society organizations who worked on livestock development interventions.

The exclusion criteria included not only not recruiting people under the age of 18 as study participants but also the exclusion of inactive livestock producers, traders, and inappropriate participants from government and civil society organizations. The study excluded those who were biased, corrupt, or in need of gifts from participating in the research study. Individuals with disabilities who were physically and mentally capable of participating in the study had an equal chance of being recruited.

Study participants had to be livestock producers, traders, or employees in both the public and private sectors highly involved in livestock development activities. The figure below illustrates the primary and secondary markets sampled for the study.

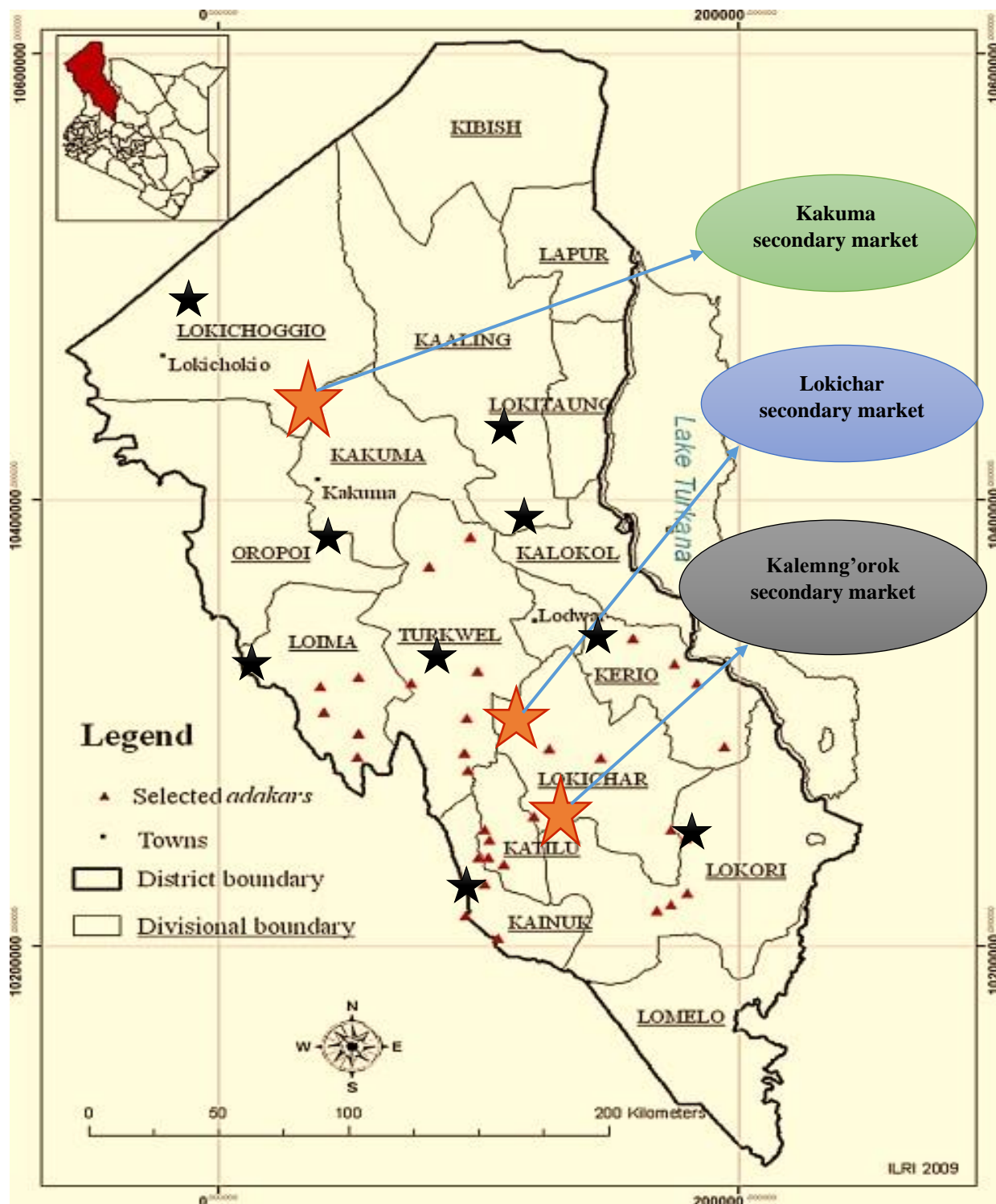


Figure 3.1.5-1: Livestock markets surveyed in Turkana

KEY: ★ Secondary livestock markets, ★ Primary livestock markets

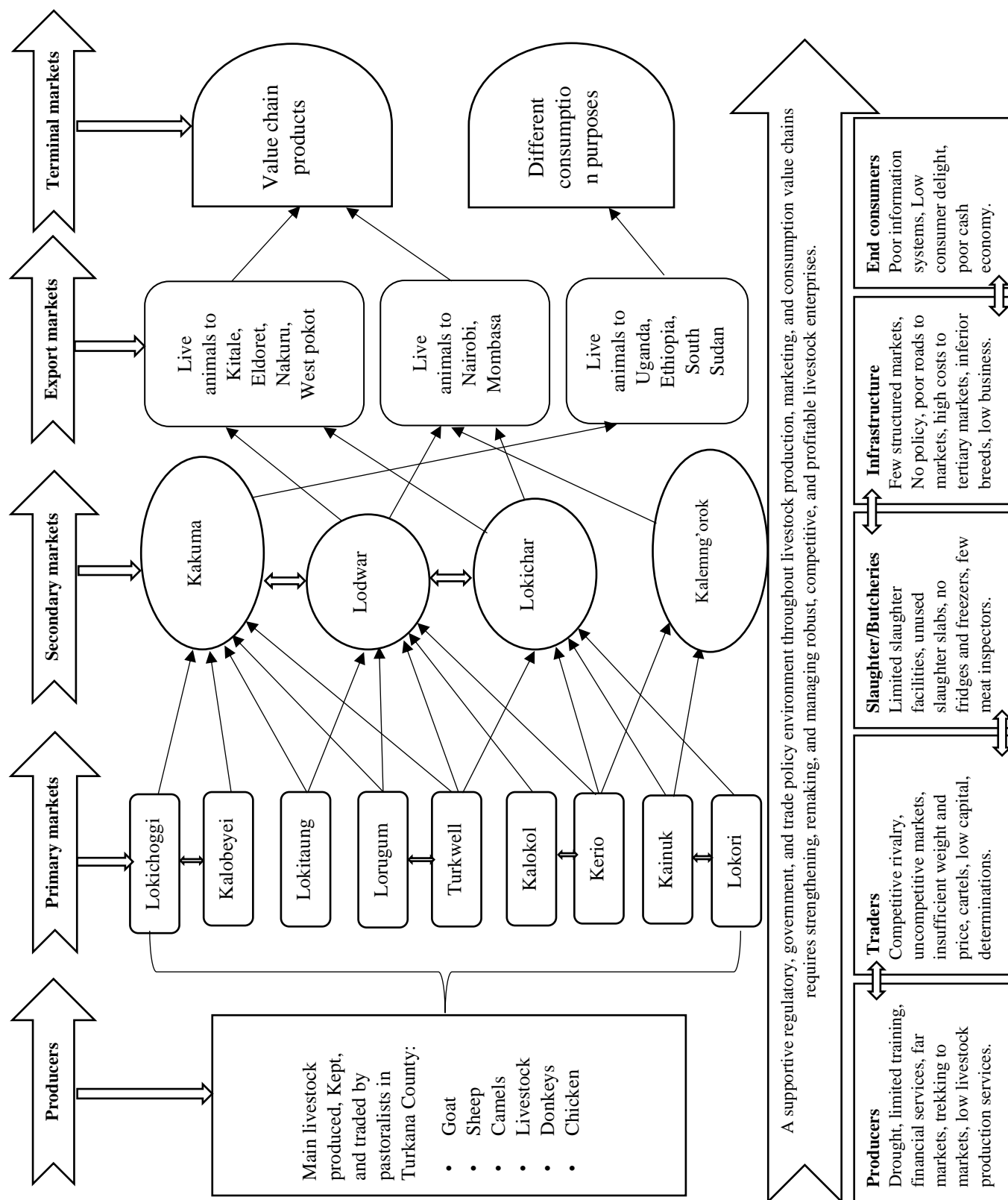


Figure 3.1.5-2: Flow of livestock in Turkana and other markets (Source: Author)

3.1.6 Materials and Instrumentation of Research Tools

3.1.6.1 Description of Research Instruments. The primary instruments for data collection were research questionnaires and interview schedules. In addition to the research topic, problem statement, and purpose, the information on the origins of the research instruments included the identification of research gaps and areas for future research in livestock production and marketing, as proposed, investigated, and tested in previous research projects.

The primary sources included self-authored books and research outputs published in peer-reviewed academic journals. Secondary sources about livestock development in pastoral areas and drylands include reference materials, books, scientific journals, and the fieldwork experiences of scholars, academics, government agencies, and civil society organizations.

Tertiary research data sources and indices allowed for the identification of primary and secondary data sources, as well as the provision of author citations and credentials for a variety of books, titles, and journals. Selected study abstracts and databases illuminated the rationale for selecting study themes, defining study variables, and structuring research questions to elicit the desired data from study groups. This method helped researchers understand the research problem better, which led to a more in-depth look at the research goals.

3.1.6.2 The Development Process of Research Instruments. Based on the nature of the study, the researcher chose a questionnaire to collect detailed, accurate, systematic, and scientific data necessary for investigating the research problem and objectives. This study's questionnaire included a series of thematic and strategic questions, as well as other data collection prompts. It allowed for the definition of the study's objectives, target participants, and methods for engaging study participants. The development of the research questionnaire was informed by the research designs and approaches employed.

Piloting the research tools, administering the study, and interpreting the results enabled the questionnaire's authenticity and usability to be determined in terms of facilitating the collection of the most specific, complete, and accurate data possible for the reliability of the study results and recommendations. The researcher made the study questionnaire based on the research gaps, objectives, and research questions for further study that had already been found, as well as the challenges of the livestock sector and industry and the needs for market access locally and across borders.

The structure of the questionnaire included closed-format questions with a predetermined set of responses on nominal, ratio, and interval scales, as well as ordinal data categories measured on a Likert scale of 1–5 values. Additionally, a few open-format questions were included to elicit qualitative data on several critical study variables. To make the research tool more efficient, effective, and acceptable to the target groups, care was taken with how the questionnaire was written, how it was administered, and whether or not it asked sensitive or hypothetical questions.

The pretesting modalities for the questionnaire were established and applied using randomly selected members of the study population, which were secondary livestock traders from the selected study sites. The action bolstered the questionnaire's objectivity and clarity, as well as resolving its perplexing elements. Additionally, piloting the research tool resulted in reframing and reorganization of the question flow, including different styles of question administration based on the time period and sociocultural characteristics of the study population.

People were contacted and involved in the study through personal contacts, focus groups, email, and phone interviews. Since the study was done during the COVID-19 period, a lot of different ways to collect data were used. Interview questions were both semi-structural and open-ended to allow for additional explanations, probing, and clarifications of the questions administered to respondents. Additionally, semi-structured interviews were conducted with participants, requiring the researcher to modify the wording and order of the questions in order to elicit the desired data.

In-depth interviews were conducted to elicit complex information with a higher proportion of opinion-based evidence. In individual interviews and focus groups, the researcher and the study participants talked about the research topic. This led to a higher response rate, more understanding and learning, and more time to look into the study's goals and themes in depth.

3.1.6.3 Validity of Research Results. Purposive sampling was used to select three experts with expertise in marketing management and analysis. Each expert evaluated the questionnaire items included in this study on a 5-point Likert scale to evaluate the relevance of the questionnaire items and the tool's organization, ease of use, and completeness. The questions formulated under all the study objectives were evaluated by experts. The responses to the Likert-scale items were reviewed in a table, and an item content validity index (I-CVI) was computed for each item.

Face validity was established by analyzing the responses of the expert panel to the survey questions about the appearance of the tool, including its organization, ease of use, and completeness. On the other hand, content validity was established by analyzing the responses of the expert panel to the survey questions about the adequacy of coverage of the items on the subject being studied (measuring the right things). The results are summarized in Table 3.1.6-1.

Table 3.1.6-1: Validity from the Expert Panel

Validity index	Values
Content Validity Index (CVI)	0.90
Face validity	1.00
Proportion relevant	
Expert 1	1.00
Expert 2	1.00
Expert 3	0.91
Average congruency percentage (ACP)	0.97

Twenty items had I-CVIs of 1.0, indicating perfect agreement by the experts that the items are highly relevant. Perfect agreement is preferred with a sample of three experts (Polit & Beck, 2012). The mean proportion of agreement, or average congruency percentage (ACP), was also calculated to provide a better measure of expert agreement in a panel of three experts. The ACP (0.97%) was above acceptable levels in the panel review as presented in Table 3.1.6-2.

Table 3.1.6-2: Validity scores of research tools by livestock experts

Scale	Item	Expert1	Expert2	Expert3	Number in agreement	Item CVI
Livestock production and market access	1	x	x	x	3	1.00
	2	x	x	x	3	1.00
	3	x	x	x	3	1.00
	4	x	x	x	3	1.00
	5	x	x	x	3	1.00
	6	x	x	x	3	1.00
	7	x	x	x	3	1.00
Trader's competitive rivalry	1	x	x	x	3	1.00
	2	x	x	x	3	1.00
	3	x	x	x	3	1.00
	4	x	x	x	3	1.00
	5	x	x	--	2	0.67
	6	x	x	x	3	1.00
	7	x	x	x	3	1.00
	8	x	x	x	3	1.00
	9	x	x	x	3	1.00
Demand and supply	1	x	x	x	3	1.00
	2	x	x	x	3	1.00
	3	x	x	x	3	1.00
Theory and livestock production and marketing	1	x	x	x	3	1.00
	2	x	x	--	2	0.67
	3	x	x	x	3	1.00
	Organization	x	x	x	3	1.00

	Ease of use	x	x	x	3	1.00
	Completeness	x	x	x	3	1.00
Face validity	Average (organization; ease of use; completeness)	1.00				
Proportion relevant	Expert 1	1.00				
	Expert 2	1.00				
	Expert 3	0.91				
	ACP	0.97				

Data Saturation. The incorporation of the concept of data saturation into qualitative research processes reinforced the criterion for discontinuing data collection and analysis for specific research segments. Deep data saturation was used to ensure the data's reliability and consistency across study samples during the study's pre- and post-testing phases. The study's scope, themes, and variables; the complexities of livestock production and marketing in pastoral areas; and the scarcity of research on market access in pastoral areas all contributed to the study's population sampling and method decisions.

The use of keywords to define the scope of available literature aided in the selection of secondary data sources for the research study. The reason for looking into the study's goals and making a system for analyzing documents was to back up the validity and reliability of both quantitative and qualitative data as well as the study's findings.

3.1.6.4 Trustworthiness of Data. The researcher focused on the transferability, credibility, dependability, and confirmability of the study data and findings as critical strategies for achieving a trusted study process and output. The study's credibility was broadly achieved by building confidence in the truth and accuracy of the research data, its interpretation, and its resultant findings. The transferability aspect was factored in to foster research findings' applicability to similar and different contexts, similar study phenomena, and circumstances and situations around the study themes. The study could be trusted, which means that the research process could be repeated by other researchers to find out more about the study's problem and similar research areas.

The credibility component gave room for outside people and institutions interested in the study to review the study findings to determine consistency. Confirmability aspects are evident based on the proven neutrality of the study findings and the extent to which they are based on the researcher's motivation, not skewness caused by either the researcher's or respondents' biases. The trustworthiness of the research data was also considered in detail at every stage of the research process. For credibility, the methods for collecting data were chosen based on how well they would collect relevant data for content analysis and meet the research goals. This was especially true during the planning phase.

Analysis of various livestock development enterprises, context analysis of livestock production, and marketing situations in the study area compared with similar and other situations assures transferability of the study output. The dependability component strengthened the processes used in the definition of study methodology and application procedures. It limited the overlap of study methods and facilitated in-depth descriptions

of the study methodology, making the study output repeatable and adaptable in different contexts. The results of the study can be confirmed if the research beliefs and assumptions are admitted, the trial is audited, and the study's methodological flaws and possible effects are acknowledged.

The organization phase of the study involved the categorization of abstractions. The data analysis's degree of interpretation ensured the data collected from study respondents was used to interpret the study data and findings. The representativeness of the data analysis process was critical for the trustworthiness of the study data and findings. Identification of study populations, study sites, use of confidence intervals, and confidence level were statistical parameters used to confirm the study data's representativeness of the population. During the reporting phase, the study's results were laid out in a way that made sense and was in line with the study's objectives and research questions.

3.2 Operational Definition of Constructs and Variables

3.2.1 Demographics

The demographic concept, using the guidelines in Truernicht et al. (2016) on demography beyond the population and drivers of variation, was applied in the research study to understand the characteristics of the study population and study samples and how they benefit from livestock development initiatives. The age variable, according to Kunze, Boehm, and Bruch's (2021) publication on age diversity among employees, denotes the length of time a person has lived. The prime indicators of age in this research were people over the age of 18, maturity, rationality, and sound judgment. The measurement of the age data category was on a ratio scale.

The education variable, referring to the years of formal instruction received and completed through passing formal exams, was assessed to refer to study participants as either illiterate, with basic education, or holding high-level qualifications. The education indicators included the level of education, knowledge base, experience, exposure, and management skills that livestock producers, traders, and public service providers possessed. Education, as an ordinal variable, was measured on an ordinary scale.

Years of work experience refers to the time spent in the livestock trade by study participants (Kunze, Boehm, and Bruch, 2021). The variable was measured on a ratio scale in terms of months and years. According to Drange and Helland's (2019) study on the effects of occupational closure on sheltering and the consequences for ethnic minorities, the occupation variable, which is an activity that people do, helps in understanding the main ways that study participants make a living. The indicators for occupation measurement were participants' specializations, enterprises, labor, skills, jobs, income, and socioeconomic status. The variable was measured on a nominal scale.

3.2.2 Livestock Production

The study theme is a critical aspect of animal agriculture that aims at producing livestock resources for food, labor, and income, among other benefits. Pastoralists depend on livestock production practices and opportunities to raise healthy and productive livestock for subsistence and marketing (Diawara et al., 2021). The key variables are the progress of production, which denotes the livestock sector's ability to reintegrate the value of the means of production and obtain a uniform non-negative rate of return. The indicators of progressive livestock production include the continuity of

livestock production ventures, the vibrancy of livestock-based enterprises, and the level of sustainability of production operations.

Factors of production variables, according to Melesse et al.'s (2020) study on livestock breeding and management, consider resources used by producers to nurture livestock resources and make them productive. The measurement indicators include the amount of pasture, water, knowledge and skills, capital, and market access.

Production enablers and impediments denote success and failure factors that producers encounter while producing and marketing their livestock resources. The common indicators in the context of the study area include drought, disease, quantity and quality of feed, amount of water, market functionality, livestock and livestock products price dynamics, knowledge and skill levels of livestock producers, and traders' and consumers' delight.

According to Yuzaria and Rias's (2017) study on the structure of the beef livestock business and Daiwara et al.'s (2017) findings in pastoral production systems, the market size variable, operationally defined as the number of individuals in a particular market segment who are potential buyers of livestock and livestock products, is a critical aspect of livestock production.

Some of the indicators to denote the scale of livestock production are the number of livestock markets that have been set up and are running, the number of markets that are covered and the number of animals that are traded, the number of traders who work in the livestock business, the number of buyers who access markets, the number of people who buy livestock products, and the viability of market access enablers.

The value addition variable, as explained in Simonet et al.'s (2020) study on improving the performance of markets in the drylands and Ryschawy et al.'s (2017) study on assessing multiple goods and services for the market, depicts how consumption of livestock and livestock products is accelerated through product quality and quantity improvements.

The variable is also a key determinant of how products can compete well in local and external markets; hence, producers and traders secure their market share. Value addition can be measured by the quality and quantity of livestock products, market gains, the number of livestock breeds, how competitive products are in different markets, how much a product is used, and how prices change with the seasons.

The market system variable shows the maximization of the input-output ratio and the macro dimensions of the market (Simonet et al., 2020). It explains the approaches used to facilitate market activities and operations. The indicators for measuring market systems include consumer prices, market information, supply chain systems, market margins, physical market facilities, and the scale of market competition.

According to Kothari (2014), research searches for knowledge through objective and systematic methods of finding solutions to problems of community and development. Theories, concepts, models, knowledge and skillsets, practices, and discoveries that have been made and proven are the most important results and signs of research success and their importance in raising and selling healthy livestock.

3.2.3 Livestock Market Access and Opportunities

In livestock marketing, market access indicates the ability of livestock producers and traders to transact business in local and cross-border markets (Mwangi, Ngigi, and Mulinge, 2015). The construct depicts steps and procedures that permeate efficient trading among stakeholders. Kgosikoma and Malope (2016) say that the physical access variable shows whether or not producers and traders can get their goods to markets.

The variable is dependent on factors that facilitate the movement of people and products to market arenas, creating conducive environments for possible stakeholder interactions and relations in trade. Indicators of market access include how competitive the products are, how easy it is to find buyers and sellers in the market, how strict the rules are, how high the tariffs are, how much the products cost, how safe they are, how far they are from the market, how much it costs to get there, how close they are to production sites and markets, and how the government wants things to be.

Market structures according to Kembe and Omondi (2016) and Fornari et al. (2016) show the characteristics of a market that influence firms' behavior and market outcomes. The critical indicators are the number of markets, functionality of markets, adequacy of market facilities, organization of trading activities, management systems, and risk-averse strategies.

Knowledgebase as a variable is evident when producers' and buyers' levels of cooperation are sound enough to facilitate business engagements. In addition, the availability of marketing information and the sharing of feedback perfect business undertakings, leading to the vibrancy of business activities, stakeholder participation, and an increase in livestock business investment decisions.

3.2.4 Market Information Systems (MIS)

The concept, as per insights in Ebel et al. (2016), presents information systems used to gather, analyze, and disseminate information about businesses and marketing decision-making. Agricultural markets depend a lot on market information systems for managing various components of specific value chains. The independent variables include Market information is integrated to inform market performance by incorporating enterprise aspects such as price curves, volatility, interest rates, and similar information for which quotes are typically available from reference market makers.

The market organization variable, in line with arguments in Yuzaria and Rias (2017), depicts how exchange in a market occurs as planned and is facilitated for stakeholders' enchantment. The key dependent variables as a result of market information and organization include production outcomes, the institutionalization of information management, transaction cost management, and regulation of market chance effects, i.e., technological discoveries, location choices, pricing strategies, market entry, exit, collaboration, market efficiency, and market power management in a growing and competitive business environment.

3.2.5 Competition and Rivalry in Markets

Anno and Pjero (2021) and Lubungu (2016) say that the idea of competition is built into business models to increase motivation, increase innovation, and help business prospects grow by taking advantage of market opportunities. Internal market forces like new entrants to markets, buyer and seller bargaining power, and the effects of substitutes and complementary products on businesses need to be regulated to the fullest extent (Berihun, 2017). This will help keep competition in a healthy range.

The independent variables include stakeholder relations and producers' and traders' ability to run their business activities cooperatively in livestock marketing. The business connections between traders must be vibrant and sustainable to allow for sound competitive practices and conducive business environments.

The dependent variables resulting from stakeholder relations are recognition, appreciation, respect, efficient trading, and communication. Also, the coordination of marketing activities, price setting, and business agreements that livestock producers and traders can broker in their markets are essential aspects of business relations. Market competition is another critical independent variable for assessment. Competition is considered a necessary aspect of marketing products, where producers and traders strive to gain and win something by defeating or establishing superiority over others. Concentration, barriers to entry, mobility, innovation, pricing, productivity, profits, and product quality were the things that needed to be watched.

Seleka and Kebakile (2017) and Anno and Pjero (2021) present competitive rivalry as a measure of the extent of competition among existing firms and market stakeholders. The indicators denoting rivalry include profit limitations, type of competitive move, price changes, cost of advertising, service costs, value-added costs, and level of innovation. Price effects are a crucial aspect of competition in markets. Through pricing, businesses set their price propositions, including their business and marketing strategies and plans.

The measurement of indicators denoting such outcomes is vital in ascertaining the effects of rivalry on market performance. The variable indicators include the average price of a product, the way the market behaves, the traits of competing businesses, and the way price changes and elasticities affect a business.

3.2.6 Supply and Demand Market Forces

The supply side of the concept as presented in Zhou and Staatz (2016) and Clark et al. (2017) depicts a schedule of various quantities of commodities that producers and sellers are willing to offer at different prices at a given time and place. It means that a market requires a substantial number of products and funds to effect transactions. The supply-dependent variables are commodity prices, which are considered prices associated with the purchase of tangible and intangible products offered to the market.

Supply also includes related goods that are either substitutes or complements, production conditions, a supply function, human labor power, the health of the environment, and urban infrastructure, all of which are important for making sure that the supply and demand functions in markets are adequate and sustainable.

While consumer expectations reflect past and current product evaluations and user experiences, the cost of inputs includes the cost of creating products and the number of suppliers providing high-quality products from production sources to various markets. Factors relating to excess demand and supply of livestock and livestock products in the market depend on the quantities supplied and demanded, leading to either surpluses or shortages.

The effects of substitutes and complements to regular commodities on the market, the efficiency of production, and consumer expectations about product usage, product benefits, consumer decision-making processes, economies of scale and cost-cutting measures, the number of traders, communication systems, and operational trade policies and agreements are all things to keep an eye on when looking at how supply and demand work.

Demand is a critical function of markets, indicating the number of products that consumers are willing and able to purchase at various prices during a given period. It brings out the relationship between price and the product quantity demanded. The independent variables and indicators of demand are the price of goods and related goods; income; the number of buyers in the market; consumer confidence; production seasons; and advertising.

For the efficiency and sustainability of marketing activities, balancing the forces of supply and demand will lead to better prices and make many market participants happy. This will encourage livestock trade both locally and through links to other markets outside of the country.

3.2.7 Theory and Practice

A theory is a contemplative and rational type of abstraction that generalizes thinking about a phenomenon, justifying the results of such thinking (Kothari, 2004). Reflective and analytical thinking are frequently linked to processes that explain variation in the variables of interest.

(Guterman et al., 2017) say that the most important factors that make theory and practice different from each other are business models and application styles. The dependent variables in livestock production and marketing include healthy competition, the power of business management, supply systems, business innovations, enterprise development, and marketing strategies. Integration of theory and practice in livestock-based development projects creates frameworks and systems that prove the need for aspects of livestock sector development such as production, livestock research, marketing, and value addition.

The category of data generated from an assessment of market access variables on livestock production and marketing, competition and rivalry, supply and demand market forces, and theory and practice study themes was ordinally measured using a Likert scale with values of 1 ("Strongly disagree"), 2 ("Disagree"), 3 ("Neutral"), 4 ("Agree"), and 5 ("Strongly Agree").

3.3 Study Procedures and Ethical Assurances

3.3.1 Study Procedures

The Unicaf University Research Ethics Committee (UREC) approved the research study before it was undertaken. The approval was granted after the development and review of the research ethics plan, which was determined to meet the fundamentals for ethically sound research. The research ethics plan stipulated critical content that depicted the research project as relevant and non-risky to study participants and the environment.

The elements of the Research Ethics plan were the definition of the research project, which included the research problem, purpose, and rationale, the research project execution plan, the characteristics of the study population, the methods of recruitment, and the operationalization of the research study. Also, the government of Kenya gave its permission for the research study to be done in the area chosen for research with linkages to critical government offices in Turkana to oversee and offer support to the researcher as required.

The researcher provided the final declarations required. The additional documents submitted to UREC for approval were research instruments, i.e., study questionnaires, study schedules, gatekeeper letters, participants' informed consent forms, and a research approval letter from the Turkana County Government-Directorate of Livestock Production.

The study methodology was well defined. It included a definition of the study problem, research designs, sampling procedures, and the actual data collection processes. After testing the tool and making changes to the study instruments, it was confirmed to be authentic and readily applicable in the field.

The study schedule was administered to primary livestock traders in (i) Lokichoggio, (ii) Kalobeyei, (iii) Lorugum, (iv) Turkwell, (v) Lokitaung, (vi) Kalokol, (vii) Kerio, (viii) Kainuk, and (ix) Lokori primary markets of Turkana. Quantitative data collection using questionnaires was administered to individual livestock traders in (i) Kakuma, (ii) Lokichar, and (iii) Kalemung'orok secondary markets.

A study schedule containing policy-related questions was administered to tertiary study participants, who were individuals from government and civil society organizations. Aside from secondary markets that have modern structures, most of the primary markets that were looked at did not have enough structures and standard market yards, so livestock trading took place in open yards.

Due to the scarcity of money in the primary and secondary markets, livestock producers struggle to sell their animals when traders arrive. There is no room for full-price negotiations. This makes needy livestock producers sell their animals at throw-away prices. The scenario is characterized as rivalry and a means to exploit livestock producers. It shows how primary markets supply secondary markets and how different catchment areas make sure that markets inside the county and across the border with Uganda, South Sudan, and Ethiopia always have enough livestock.

3.3.1.1 Application on Articipatory Rural Appraisal Tools (PRA). Participatory Rural Appraisal (PRA) tools were applied in the study to support data collection. Formal and informal interviews were assessed through questionnaires, and a study schedule was administered to study respondents. Visualization and ranking and scoring techniques were equally piloted with direct observation, and literature reviews proved applicable. The PRA tools used are depicted in the figure below.

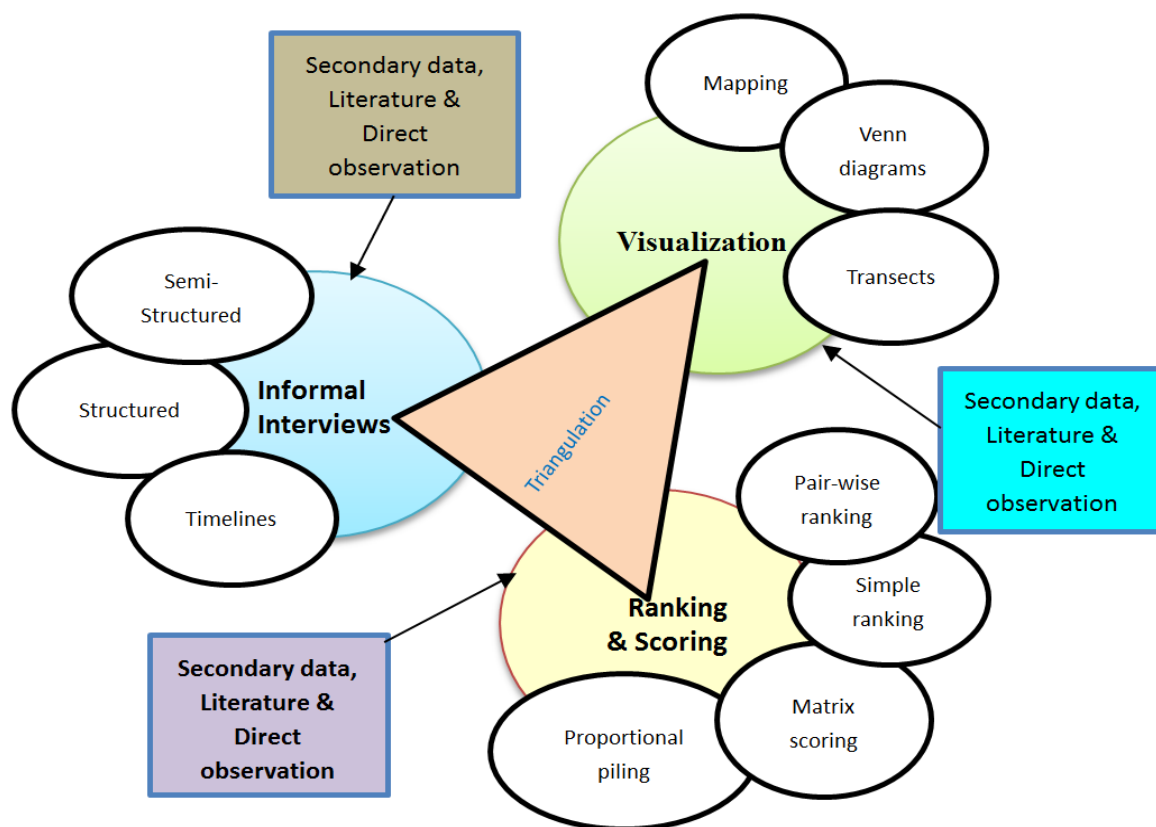


Figure 3.3.1-1: Participatory research techniques (PRA) tools (Source: Author)

3.3.2 Data Analysis and Presentation Techniques

3.3.2.1 Descriptive Statistics. Descriptive statistics techniques were prioritized, with common metrics used to organize raw data into formats that are easy to grasp and analyze. Through organization and observations, the technique allows for the quantification and description of basic features of variables in a data set. It gives complete information about a study population and is used to draw a judgment about the distribution of data in order to support the necessity for more statistical analysis. The figure below shows descriptive statistics measures that were used to organize, analyze, and report the research data.

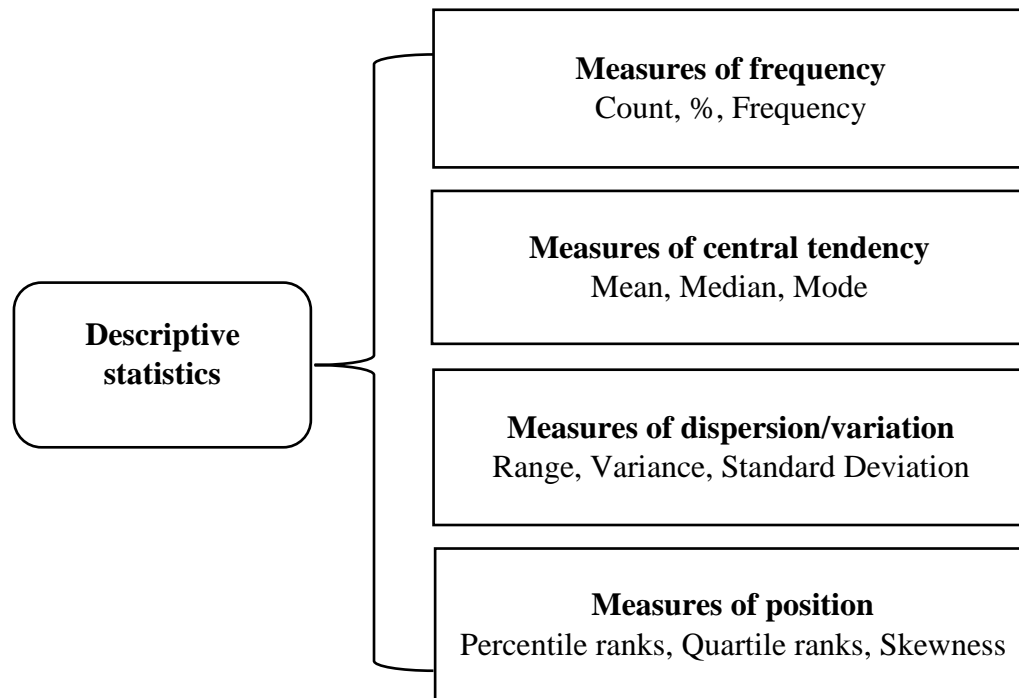


Figure 3.3.2-1: Data analysis - Descriptive statistics

3.3.2.2 Inferential Statistics. Inferential statistics techniques, like descriptive statistics, are used to collect, analyze, and transform study data into information for decision-making. It aids in drawing conclusions from sample analysis and extrapolating them to the entire population. Through the capitalization of probability scores, the approach compares, tests, and forecasts future outcomes.

Inferential statistics seeks to draw conclusions about the population that are based on more data than is currently accessible. To determine statistical evidence on the events and variables under inquiry, it employs procedures like hypothesis testing and analysis of variance. The diagram below shows the measures of inferential statistics applied in the research.

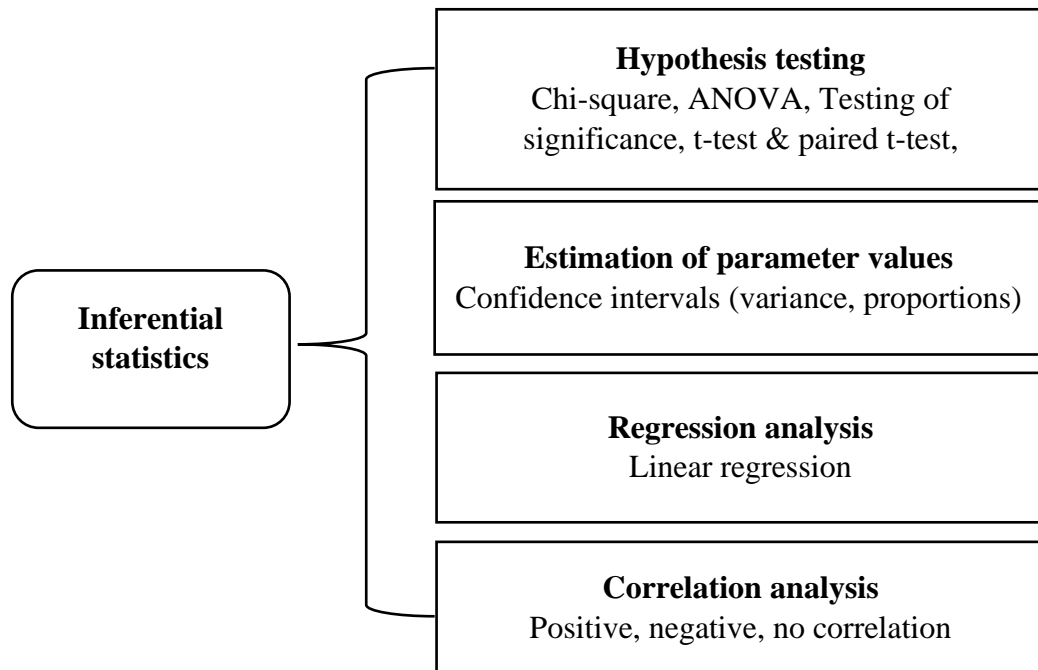


Figure 3.3.2-2: Data analysis - Inferential statistics

3.3.2.3 Techniques and Processes of Data Analysis. Quantitative data collected was first analyzed using standard deviation for numerical variables, frequencies, and percentages for categorical variables. Next, a chi-square test was used for the categorical variables to test whether there was a significant difference between variables investigated in the three markets. This was followed by a comparison of numeric variables between respondents in the three secondary markets. This was done using the Kruskal-Wallis test, followed by post hoc pairwise comparisons using the Dunn-Bonferroni approach.

The data did not meet the normality and homogeneity tests of variance to allow the use of one-way analysis of variance (ANOVA). The Kruskal-Wallis test is a non-parametric statistical test that assesses differences among three or more independently sampled groups on a single, non-normally distributed continuous variable. The significance level was set at 0.05, and the Bonferroni adjustment was used to account for multiple comparisons.

Before analyzing the frequency of statements under each focus area, Cronbach's alpha was used to assess the items' internal consistency (statements). Statements with a Cronbach's alpha of 0.5 and above were retained for further analysis. The meaning of the retained statements and the total scores of the statements were then determined. The one-way ANOVA was used to determine whether there was a significant difference in the four themes' mean scores across the three markets.

A simple linear regression was used to meet study objectives 2, 3, and 4. These goals were to find out how traders' competitive rivalry affects the production and marketing of livestock, how competitive rivalry affects the relationship between livestock

supply and demand, and how competitive rivalry affects new theories in livestock production and marketing.

The appropriate categories of qualitative data analysis were applied for a holistic examination of respondents' data and views generated during the research study. Due to the size and number of variables in the study, the content analysis of livestock production and marketing, competition and rivalry, supply and demand, and theory integration were grouped together to make them easier to study.

The narrative analysis enabled the researcher to revise the primary qualitative data further to understand and align it with the study scope. In addition, discourse analysis facilitated the critical investigation of naturally occurring respondents' submissions, enabling data to be put into context. Aspects of framework analysis supported familiarization, coding, charting, mapping, and interpretation of data output.

The development and application of codes facilitated the categorization of qualitative data into meaningful titles and subtitles. Open data coding led to the initial organization of data, axial coding led to the connections between codes, and selective coding led to the creation of a study narrative by connecting the selected data codes and categories.

Identifying themes, patterns, and relationships enabled counting words and phrases repeated in the data for further coding and data merger. Primary and secondary data comparisons were made to facilitate the data narrative's logical flow, coherence, and objectivity. A search for missing information was also done, leading to the filling of the gaps in the collected data. The researcher looked at what the study participants didn't say

and used other sources of information, like scientifically generated literature sources on livestock development in the drylands, to round out the study data and findings.

The study data and findings were used to relate the study data and findings to other pastoral areas of Kenya. This relationship was vital for applying the research output to the broader pastoral regions and drylands of Eastern Africa and Sub-Saharan Africa as a whole. The ways that data was collected and analyzed contributed a lot to the study's reliability, which was made possible by the fact that research study data and findings could be transferred, believed, relied on, and confirmed.

3.3.3 Ethical Assurance

The ethical principles of research for study participants and researchers were applied in the research study. The beneficence moral research principle is meant to benefit society by focusing on global issues that research should generate solutions for. The principle promotes the well-being of target populations by tailoring research outputs toward addressing the identified touchpoints. The principle helps people be more generous, manage risks, protect the rights of participants and researchers, save people who are in danger, and help people with disabilities take part fully in research projects (Kothari, 2004).

The scientific validity principle promotes beneficence by encouraging researchers to scientifically design and implement research projects to solve humanity's touchpoints. The tenets improved the conceptualization of the research problem and phenomenon. Because of this, the ethical problems caused by being insensitive to beneficence were limited by the quality of research designs, questions of validity, the practicality of research methods, and the reliability of research procedures (Bashir, 2018).

The research study was designed to ensure it did not harm study participants by avoiding stress and physical and mental maltreatment. The responsibility principle makes researchers appreciate the needs of study subjects (individuals), communities, and civil servants. It protects people's lives daily by acting as a bridge on matters where knowledge is remedial. The ethical aspect limited the blind spots that could cause harm to the study subjects.

Compliance with existing laws and regulations governing research practices requires researchers and study participants to conduct legal and ethical research processes. Risk-free research designs help researchers avoid discrimination, especially when selecting samples and administering research tools to study participants. The researcher's skills were also important for adding value to the research information that was collected, analyzed, and published without hurting the people who took part in the research or the people who used the research products.

The ethical principle of a favorable risk-benefit ratio is an ideal criterion for defining the sensitivity of a research study and informing researchers on remedies to defend ethical consideration of research projects. The tenet kept the research safe from risks and problems that could have ruined the important gains and hurt the people who worked on the research. Respect for people made the researcher acknowledge that people deserve the right to fully exercise their autonomy. It promoted researchers' self-legislation to make judgments on matters relating to research projects. Respect protected the research participants from forms of degradation and abuse.

Through respect for people, research subjects are recognized as unique, free, valuable, and dignified. The tenet also required the researcher to show respect for fellow researchers and their work. The prior informed consent principle reinforces the need for respect for people. Participants were given a chance to understand the research study project and balance the risks and benefits. The tenet emphasized the need for researchers not to engage participants without understanding the essence of the research study. Documenting participants' consent was essential. Participants had the right to withdraw their data if they so wished.

Confidentiality and privacy ethical tenets are essential for the anonymity of research subjects' identities and the information they provide. The confidentiality limits were defined and endorsed in the ethics research plan and shared with study participants. Laws and regulations regarding access to and management of research data were adhered to.

The autonomy principle was used to promote respect for people, their thoughts, intentions, and actions for effective decision-making. The principle also reinforced the freedom of study participants from elements of coercion. Justice was built into the design of the research so that the study participants, how the research was done, and how it was evaluated were all fair. This also made the research processes and results more equitable.

Integrity is a critical principle required to promote justice and truthfulness in all research undertakings. It also facilitates freedom of inquiry, honesty, rigor, and open communication. Honesty and caution are critical to the morality of research actions. Respect for intellectual property rights and protection of information ownership were well

exercised. The research study was non-deceptive. Immoral practice was avoided in the first place for the justice of the people concerned, and there was no incident recorded during the research period or after where participants felt deception of any kind. In summary, the diagram below shows the different ethical rules for study participants and researchers.

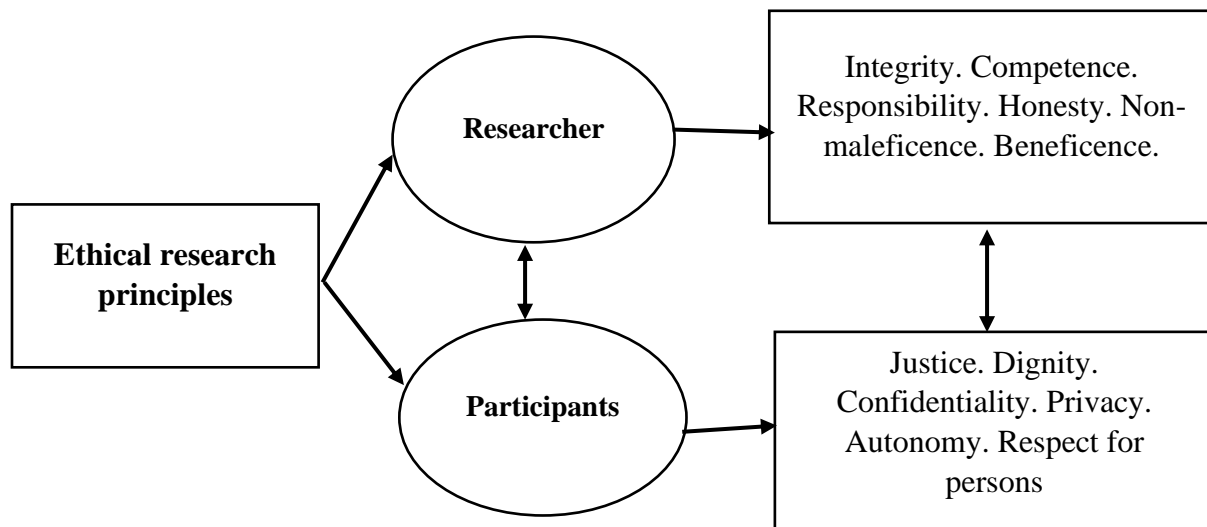


Figure 3.3.3-1: Research ethics principles applied (Source: Kothari, 2004)

CHAPTER 4: RESEARCH RESULTS

4.1 Qualitative Study Results

4.1.1 Study Findings from Primary and Secondary Research (Livestock Traders)

4.1.1.1 Trader's Competitiveness in Markets. Pastoralism was identified as the primary livestock production system and the predominant pastoralist lifestyle by the majority of study participants in Turkana. The production system is the primary source of food, income, and nutrition for households. Nomadism was prioritized as the major coping strategy for locating better pasture and water within and beyond pastoralists' domains.

Similarly, almost all participants in the primary study believed that herding is used to graze livestock during the wet and dry seasons in rural areas where lowlands and hilly areas are designated as wet and dry season grazing areas, respectively. Reports and answers from the majority of people who took part in the study show that most pastoralist households in Turkana depend on livestock for food.

The vast majority also reported that the livelihoods of pastoralists are threatened by the increasing spread of livestock diseases, frequent droughts, diminishing biodiversity and pasture resources, limited water, and difficulties associated with migration, such as stress on both livestock and humans and intercommunity conflicts.

During periods of drought, herders struggle to keep their livestock alive, healthy, and productive by working extra hard to leverage them from drought-related effects and losses. In almost all of the study areas, it was pointed out that droughts force herders, especially those who live in cities, to buy expensive commercial feed and give their

animals extra food. In contrast, herders who live in rural areas feed their animals with rangeland forage.

According to the study, households in Turkana acquire livestock via family gifts, inheritance, dowries from marriages, market purchases, government and civil society restocking programs, and assistance from friends. Very few livestock herders have acquired conventional knowledge as a result of government and civil society interventions in the livestock industry. Most livestock keepers' herd sizes have gone down because of repeated drought and disease, which has hurt their wealth, ability to make a living, and welfare status.

It was also discovered that pastoralists living near major towns and trading centers have easier access to food, household health care services, livestock health and production inputs, and government and civil society updates than those living in remote interior locations, where a lack of basic human and livestock services has a substantial impact on pastoralists' wellbeing. Also, pastoralist youth who go to school build strong family ties by taking care of livestock during school breaks. When they are working, they contribute to the well-being of their families by setting up pastoral livelihoods in their communities.

Other significant obstacles to pastoralism include diminishing land carrying capacity, overgrazing, limited traditional knowledge and livestock production practices, insufficient livestock exports, and limited input availability and supply. Several study participants in conflict-prone regions also observed that a number of pastoralist households had abandoned the system of pastoral production in favor of wage labor and other sources of income in urban trade centers.

Participants in the study cited insecurity, livestock raids, and theft, in addition to political and transboundary obstacles, as having a significant impact on livestock production efforts. A weak cash economy makes it harder for pastoralists to buy the things they need to raise healthy, productive, and market-standard livestock. Many of the people who took part in the study thought that lack of access to and affordability of livestock production inputs would mean less livestock production and lower market capitalization.

Pastoralists have preserved their indigenous breeds and native livestock husbandry practices, and as a result, the majority of animal resources are produced using traditional methods and practices. In the pastoral region of Turkana, where cities are growing and investments are being made, rangelands and grazing pastures are being used up.

The expansion of commercial centres, towns, and business developments, such as Tullow Oil projects, road construction schemes, land for social amenities, and the expansion of the hospitality industry, were cited by many respondents from Kakuma and Turkana South markets as important reasons for the depletion of land for livestock production. Beyond rural populations, climate change's manifestation remains a complex issue. Study participants fear that the far-reaching effects will threaten pastoralists' socioeconomic well-being and means of subsistence.

4.1.1.2 The Scale of Livestock Marketing in Pastoral Areas. In each of the primary markets evaluated, traders and organizations expressed their inability to define the scope and size of the livestock trade in their respective communities. Respondents to the study thought that Turkana could market and trade livestock in a sustainable way because the country has a lot of livestock.

While the vast majority of traders transport their animals to the market on foot, only a few of those with sufficient capital use trucks. It was found that high-capital traders (capital >US\$10,000) buy animals from low-capital traders (capital <US\$2000) at a discount, which lets them make the most money in multiple markets. Many of the people who answered thought that differences in capital led to traders taking advantage of each other, to greed, and to competition in the livestock trade.

All the markets surveyed expressed that there are no institutional cooperatives that connect traders. Even though CLMC and LMA kits are not part of a formal financial service system, most of the people who answered the survey thought that the lack of financial services through cooperatives meant that local livestock traders and entrepreneurs didn't have access to business capital. Several respondents believed that the mechanism of top-down livestock trading utilized by tertiary livestock off-takers, primarily Somali and Borana traders from tertiary marketplaces, made competition in livestock markets extremely intense.

Due to infrequent purchases from terminal markets by tertiary traders, livestock accumulates in secondary marketplaces in Turkana, awaiting sale. Many of the people who answered the survey said that the lack of connections with tertiary markets and traders was to blame for the low sales in the local primary and secondary markets.

The lack of contracts between the majority of traders and prospective tertiary markets is largely viewed as a failure on the part of CLMC and the County Directorate of Livestock Production, which are mandated by policy to promote livestock trading both within and beyond the county. Even though their social and economic situations limit them, traders' entrepreneurial skills are seen as game changers when it comes to developing market financial and partnership solutions.

Numerous respondents believed that individual traders and groups in a market with a large capital base would scale up their animal trade activities, develop competitive strategies to expand into other markets, and recruit capital-rich private sector institutions to ensure the success and longevity of their commercial relationships. The study found that gaps in national and county policies about livestock that are not closely tied to markets make it hard for livestock resources to get to markets that could use them.

The County Directorate of Livestock Production and civil society organizations that specialize in agriculture, livestock, and natural resource management (NRM) strive to provide livestock producers, traders, and consumers with capacity-building services. Many study participants in primary markets thought that the County Livestock Marketing Council (CLMC) and its ties to the Livestock Marketing Associations (LMAs) helped keep livestock markets and trade networks alive in Turkana County, one of Kenya's most important and strategically located rural livestock-producing regions.

According to respondents, the marketing potential of Turkana's livestock production is constrained by household expectations and culturally based livestock production intentions. Long distances to markets, high transportation costs, and a lack of information for traders and consumers all affect traders' market capitalization capacities.

Few buyers of livestock, especially those from tertiary markets that can buy a lot of livestock, consistently offer bad prices, making it hard for more farmers to sell their animals.

The sluggish pace of markets and the institutionalization of marketing systems were thought by study respondents to impede the transition of livestock production intentions from subsistence to highly valued commercialization in almost all markets. Although people who took part in the research affirmed that they see positive improvements in livestock production, the vast majority of respondents from all markets said that livestock production growth in Turkana County remains low.

4.1.1.3 Livestock Markets and Pastoral Economy. Regarding the benefits of livestock markets, the vast majority of study participants affirmed that livestock markets enable livestock farmers to sell their animals and meet their financial obligations. Those who invest in livestock enterprises are able to pay for their children's education and medical care, buy medicine for their animals, and fund their alternative income sources. As asserted by a good number of respondents, thanks to markets, livestock producers are able to communicate with other livestock producers, form alliances, and gain market insight from their expectations.

Despite climatic, social, economic, and political limitations, livestock producers and traders have enhanced their investment options, thereby extending the livestock trading season in Turkana. Through markets, it was found that traders are increasing the flow of cash into remote areas, allowing herders to increase their income and family economy.

The livestock cash market has improved consumer access to various livestock value chains, according to the primary study participants in 8 out of the 9 primary markets

surveyed. Restocking, cultural traditions such as dowry payments, and the supply of meat products through butchers and institutions are all made possible by a ready supply of livestock resources. Academics, extension specialists, and trainers who have a big effect on livestock production, trading, and consumption have been drawn to markets.

Despite the livestock sector's contribution to Turkana's pastoral economy, study participants reiterated that meat prices continue to be prohibitively expensive and out of reach for many consumers and value-chain businesses. Even though Lodwar town is in the middle of a livestock-production area, meat is more expensive there than in any other city in Kenya. This is something that most respondents think is ironic and needs to be looked into in detail.

The administration of Turkana County, through the Directorate of Livestock Production, views livestock marketing as an essential aspect of livestock investment. However, study participants felt establishing a well-organized livestock marketing system remains difficult despite the fact that one of the directorates' primary responsibilities is to facilitate livestock marketing and trade in the country. It's important to know that the Livestock Sector Policy and Bill and the Livestock Marketing Bill are being written to provide policy and regulatory guidelines for the efficiency and effectiveness of livestock production and the organization of livestock marketing activities in Turkana.

The proposed livestock legislative frameworks also aim to facilitate the establishment of healthy and productive livestock resources, the establishment of livestock markets and trader capacities, the establishment of governance and administrative systems for operating livestock markets in the county, and the promotion

of the significance of livestock production and marketing to the economies of both the county and the nation.

For the majority of traders, the problem of inadequate capital remains unresolved, and better local but improved livestock breeds from other Kenyan counties, such as Galla goats and Toggenburg crossbreeds, were brought to the county but failed to meet expectations in terms of expected value addition, an important factor for transforming the genes of local breeds. Most of the people who took part in the study think that inbreeding weakens the strength of local breeds over time. This is because inferior genes keep getting passed on, which is why market-size animals have low body scores and live weights.

Most of the people who took part in the study thought that even when animals from Turkana are sold on cross-border markets, local breeds are still not competitive. Many study participants believe that the County Directorate of Livestock Production in Turkana can change this by investing in programs to improve livestock.

Participants in the study were unwavering in their belief that despite efforts to organize market trade, there is still no regulatory framework that supports inclusive trading within market yards while preventing fraud and rivalry. As a result, market stakeholders, especially producers and low-capital traders, continue to be susceptible to manipulation. Due to the fact that Turkana's markets and livestock entrepreneurs in primary markets are struggling to sustain their market engagements, it was noted by many study participants that no specialized research has been conducted to develop programs to address the underlying market inefficiencies.

In all of the primary markets that were surveyed, it was revealed that market managers and service providers were not able to do regular livestock market surveys and studies. This made it harder for stakeholders to find business opportunities, improve their ability to recognize and deal with business risks, make relevant livestock marketing promotional packages, and regulate market approaches toward a unified livestock market organization system.

4.1.2 Traders' Competition and Rivalry

Numerous traders in primary markets reported having excellent relationships with livestock producers in catchment areas, as evidenced by consistent animal transactions and good hosting. Market interconnectivity is credited to the LMA, which is constructing a marketing chain in which traders manage their respective markets. But traders have bad relationships when they break market chains to buy and sell livestock to people who are not part of the agreed-upon market structure, organization, and trade arrangements.

The violation of marketing protocol was viewed as a source of competition, an impediment to producer-trader interactions, a disruption of the market organization, a challenge to pricing control and management, and a risky endeavor for individual and group investments. Traders frequently struggle to gain the confidence of herders and other traders.

Unethical business practices like bribery are used to get the level of customer loyalty that a company wants. Even though company mergers and acquisitions are becoming more common among livestock traders, the people who took part in the study thought they were too informal to help with unity agreements, shared market power, more

inclusive business transactions, and better trading with formal public and corporate institutions.

While traders use their own methods to manage markets, the privatization model is widely regarded as neither formal nor structured, with unclear stakeholder responsibilities and interests. Particularly when conducting business through mutual agreements, farmers and merchants in primary marketplaces have a positive working relationship. Traders and producers are familiar with one another in primary markets. The majority of merchants are also animal farmers. They communicate, which enables them to sell animals directly via orders.

Aside from conducting business, traders in primary markets assist one another in acquiring stock, such as livestock species that are unavailable in the markets in which they operate. When other merchants visit, those merchants support their guests. According to the study participants' reference to the LMA market approach, only primary traders are required to purchase animals from production areas.

Due to their limited market knowledge, herders are unwilling to engage in transactions when prices appear to be too low. Due to their love for the animals they bring to the market, they occasionally propose exorbitant prices, which makes it more challenging for traders to negotiate down to actual and average market prices. Considered differences in producer price offers show blind spots and a lack of knowledge about how the market works and how prices change.

4.1.2.1 Competition and Rivalry in Livestock Markets. The vast majority of livestock sellers at all markets lack any understanding of competition! According to them, competition primarily refers to differences in capital resources, marketing strategies, purchases and sales, and the market share held by individuals and groups. However, due to the absence of a level playing field and the ferocity of the competition, wealthy traders have total control over livestock trading and market dominance.

Numerous traders believe that competition is detrimental to the country's livestock industry, as it is evident that livestock dealers in various markets compete with one another. The duplication of livestock enterprises, the specialization of market participants, and the regulation of market operations by LMA authorities are indicators of rivalry. Even when the market is good, there is a strong belief among the majority of study participants that traders' market shares have gone down because of high competition and low sales.

Potential traders, primarily from secondary markets, seek to deplete the customer bases of their competitors, sell to shared customers, and struggle to secure contracts to serve new markets at the expense of primary market traders. Also, most of the people who answered thought that livestock merchants encouraged fierce competition to make money for themselves.

According to the evidence that has been collected, competitive rivalry comes from traders trying to make money off of market gains by doing things that help them more than livestock farmers and consumers further down the value chain. Respondents said that structuring competition systems and getting rid of rivalry tendencies would make markets much more economically efficient, boost organized livestock marketing, make it

easier for all markets to get an equal share of resources, and speed up LMAs' ability to come up with new ideas and change.

The study determined that competitive rivalry is stifling trade, resulting in unfair pricing of livestock and products and a lack of customer satisfaction. Due to traders' reliance on small stocks, both capital growth and profits are constrained. Notably, competitive rivalry enables buyers to pick and choose animals for sale, thereby restricting bidding options. This strategy is used to undermine price negotiations.

Low-capital traders who acquire animals through a price negotiation mechanism are denied by high-capital traders who acquire animals in bulk at average prices. Competition is clear in marketplaces, especially in secondary markets where trader relationships are tense. This is because when the supply of livestock in primary markets is limited, competition in secondary markets increases, making it harder for urban and peri-urban households to get livestock products.

The majority of primary traders in all surveyed markets emphasized that in secondary markets, traders' operating capital varies significantly, resulting in intense competition. Due to market demarcation and a lack of information regarding the state of the spot and future markets, there is increased competition and rivalry among traders, which significantly hinders the efforts of primary traders to enter secondary markets. Larger livestock dealers take up most of the market demand, leaving smaller dealers without enough money to compete.

According to livestock producers and primary traders in the Lokichoggio market, the closure of the Lomidat Slaughterhouse in Lokichoggio, a possible tertiary livestock market in Turkana, has exacerbated the problems in the livestock trade, as the facility,

when in operation, made it easy for all traders to sell their animals by eliminating unnecessary competition, thereby creating opportunities for both producers and traders to maximize their livelihoods and alternative business opportunities. Respondents say that the loss of the Lomidat Slaughterhouse is bad for the livestock market in Turkana.

4.1.2.2 Impact of Rivalry on Livestock Markets and Traders. Due to low prices and exploitation, producers believed market competition deprived them of the value of their animals. Producers and itinerant traders who are unaware of current market prices are subjected to unfair pricing, and if their stocks are not sold, they are responsible for the costs associated with holding animals until they are sold on the market. There is no written framework for competition management in any of the markets studied. LMA officials utilize market data primarily to identify and fix prices in their favor.

Although traders are aware of the consequences of lower livestock prices, they cannot explain how competition reduces costs. Instead, they actively reported price discrimination, wherein secondary and tertiary market traders use low purchase prices and high selling prices at terminal marketplaces to maximize profits at the expense of livestock farmers and primary market traders. Respondents to the first study thought that there were no formal formulas for setting prices for livestock in Turkana.

While there are tremendous prospects for a thriving open market system, disparities in trader capacity have necessitated the inclusion of harmful monopolies and cartels in livestock marketing systems. Approximately half of the study's primary participants disagreed that competition is a market strength. They thought that traders with a lot of potential take advantage of competition and don't care about how profitable

and long-term the livestock trade is for the economy of the region and the welfare of pastoralist households.

Primary traders asserted that secondary market traders desire a system that allows primary traders to sell to them directly at any price they set. Numerous stakeholders view this objective as a way to encourage people to pursue their own interests at the expense of others. Due to the lack of established primary market yards, secondary traders who purchase from primary markets are not attracted to secondary markets, forcing primary market traders to always transport their animals to secondary markets. As they are forced to sell livestock in the same manner as farmers on secondary markets, primary traders feel inferior and exploitable. This severely restricts their competitive capabilities in the market.

The relationships of primary traders in Turkana's peripheral regions extend to neighboring communities in South Sudan and Northern Uganda that trade with Turkana traders, particularly in the western half of the country. In addition, the research revealed that there is no standard procedure for primary and secondary market traders to access market opportunities. Secondary traders want livestock from primary traders so that they can sell it on the market, despite the fact that the money paid to livestock owners does not reflect the animals' true cost or markups.

According to primary traders, poor prices are a typical example of traders exploiting others. Denying producers and traders the value of their animals erects unnecessary barriers in the marketing system, hindering traders' ability to establish livestock marketing operations. According to the vast majority of primary traders, a market may choose to set

false prices, and traders from secondary markets may place direct orders with primary market traders, thereby disrupting the primary market's operations.

The marketing order for livestock in the markets excludes unregistered traders who operate independently, thus disrupting the connection between primary and secondary markets. Due to a lack of awareness of market structure and modes of operation, unregistered traders modify marketplaces to their advantage, which indeed displaces real market traders. Non-livestock traders make deals with institutions to supply livestock and meat products. They do this by giving institutions unwanted animals and items that don't meet the market's quality control standards.

Many of the people who took part in the primary study said that the problems with quality assurance should be taken care of by livestock governments and professional organizations. It is feared that, due to their financial resources, unregistered livestock traders may enter the market, preventing registered livestock traders from maximizing their sales. Modernizing and updating livestock market yards and market days will make it easier to organize activities related to selling livestock and help people build strong business relationships.

Linking traders so they can see how markets work together; improving all traders' knowledge and access to capital to create a level playing field; registering traders in all markets; making constitutions, bylaws, and regulations for all markets; giving traders specialized training on competition and market forces; setting up trips to successful markets and livestock production areas; and making it easier to go to different markets instead of co-locating them are all important steps towards developing robust markets, as presented by a good number of survey respondents.

Increased access to finance through grants from civil society and interest-free loans from financial institutions, as well as making all traders aware of the repercussions of rivalry, protecting low-capital traders in both primary and secondary markets, and expanding community sensitization programs on the marketing of healthy and productive livestock, will increase awareness and participation in livestock development initiatives. Demand and supply, as well as a number of non-market variables, must be explained in detail to market participants in order to get a consolidated view of what primary traders think.

4.1.3 Supply and Demand Relations in Markets

4.1.3.1 Availability of Livestock in Markets. According to all evaluated primary markets, the availability of livestock on the market is sufficient to meet demand. In contrast, the vast majority of traders are unaware of the market's characteristics. As a result, individuals are unable to determine whether animals and livestock products meet their needs adequately. Even though there is an adequate supply of livestock in Kakuma's markets, high prices have a negative effect on how customers meet market demands.

Herders believe the equilibrium between supply and demand is excellent because every animal they bring to market is purchased by traders. In contrast, traders believe that supply is insufficient to meet demand. Even though they purchase every animal brought to market by herders, it takes time to sell these animals to other traders in secondary and tertiary markets, putting their operating capital at risk.

It is believed that competitive rivalry limits the frequency of purchases and sales, as well as traders' ability to reinvest operating capital and generate a profit. Traders with

limited capital are more likely to trade livestock with lower net returns than traders with greater market gains. Traders haven't been able to sell more livestock because they haven't been able to find a perfect balance between supply and demand.

According to study respondents, there is also a widespread belief that it is becoming increasingly difficult for livestock sellers to avoid the complexities of supply and demand. In addition, the study revealed that supplying livestock producers does not generate a profit for livestock dealers. Numerous sellers of livestock admit to operating without supply-and-demand-controlling business structures.

Primary traders reported that they have not yet reached a point in their operations where they can provide the proper quantities and quality of animal resources to the proper markets at the proper time. Respondents didn't know how the lack of sales in markets affects the number of animals in production zones that are waiting to be sold in commercial livestock farming models, or how trading animals in markets affects the rate of production on the farm.

Pastoralists use the remaining animals for a variety of purposes, such as dowry payments, traditional rites, bartering with other goods, and trading with other livestock species. Over half of respondents at the Kakuma livestock market knew what happens to animals of market weight in production areas if they are not sold at the market.

The most pressing issues with regard to demand and supply in markets were determined to be drought, loss of body weight and condition, disease, raids, high feeding costs, and inefficiencies in supply and demand linkages. People say that Kakuma traders' long-term experience, high levels of training, lessons learned from exposure tours to other markets in the country, and living and working with refugees helped them turn these gaps

into market opportunities for livestock traders and business opportunities in the refugee settlements in Turkana.

According to primary respondents, market days would impact secondary and tertiary markets. There is also concern that the justification for selecting market days in a situation of livestock marketing where supply is already abundant would result in excessive aggregation, thereby aggravating the supply-demand imbalance.

Traders concur that instituting market days in productive areas could limit herders' access to markets for their daily financial needs. In addition, the marketing arrangement may permit the sale of large quantities of livestock by the herders. Given the present state of household socioeconomic indicators, interpretable marketing models are necessary.

A little more than half of the respondents in primary markets reported that livestock prices were inconsistent and even elevated throughout the entire season. The majority of respondents expressed fear that a lack of financial resources is threatening the economy of pastoral areas. Households in many Turkana markets say they can not get livestock meat value chains and animal proteins because they are too expensive at local butcher shops and restaurants.

4.1.3.2 Pastoralists Access to Non-pastoral Goods and Services. Pastoralists primarily sell animals to acquire food, so there is a plentiful supply during dry seasons, a time when pastoralists experience a significant reduction in food and income at household levels. During the dry season, animals are also in poor physical condition; therefore, selling them earlier would decrease the amount of money lost to famine. Study participants also expressed that during the dry seasons, animals migrate across internal and international borders to reach markets in adjacent regions. Every day, regardless of animal count, livestock is trekked to markets. The following day, traders return any unsold stock to the market to try to sell it.

In some markets, supply and demand are in equilibrium. As a result of cross-border trade opportunities, markets near production areas have abundant supplies during the wet seasons. Many study participants believed that the prices offered determine the availability of animals at marketplaces. When there is little demand and a lot of supply, like when there is a drought, producers and traders have to pay a lot to house, feed, treat, and secure livestock that is waiting to be sold.

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During droughts, traders' capital decreases, preventing them from competing with traders from external markets. In the context of livestock marketing in Turkana, study respondents indicated that the supply of livestock typically exceeds the demand. Despite this, butcheries only slaughter a few animals. Additional animals are acquired by traders and subsequently sold on secondary markets.

Instead of focusing on domestication, many study participants strongly felt that livestock farmers should concentrate on selling their livestock. Instead of taking advantage of unscrupulous producers in production zones, traders should also purchase animals from markets. Most of the people who took part in the study in each market said that prices should be low enough to encourage livestock farmers to sell and traders to keep buying livestock.

A large number of people who took part in the study said that livestock traders need to diversify their businesses and financial resources in order to compete in different markets. They also said that more people should be able to access livestock markets in order to promote healthy market competition and get rid of rivalry.

Several people said that making livestock meat value chains more affordable will increase the number of animals killed and the number of butchers, food stores, and households that can afford to buy livestock products. But most people said that improving the way local markets work and making sure that secondary markets are connected to tertiary markets can help livestock farmers and traders behave better at markets.

According to the results of the study, a large number of the people who took part in it thought that market participants needed to know about livestock trade and market performance issues to make it easier for everyone to work together and make decisions.

More than half of the study respondents in primary markets indicated that investigating the potential relationship between supply and demand in Turkana would stabilize market forces critical for the functionality of livestock markets.

It was also asserted by many respondents that identifying potential markets and relating them to supply in the country, determining the consumption capacity of livestock and livestock products in various market categories, and segmenting the market would contribute to increasing capitalization and monetization of existing and new market customers. In addition to making it easier to turn livestock production into a business, knowing the number of animals and how many are ready for the market can help coordinate livestock marketing and make local production more market-driven.

4.1.4 Strategies and Models for Livestock Production and Marketing

According to research, new market entrants increase competition and rivalry in all marketplaces. Low barriers to entry to local marketplaces in Turkana County, combined with a high threat of new entrants, have reduced the sales and profits of local merchants, thereby jeopardizing their competitive positions.

Due to their vast financial resources and economies of scale, new entrants, primarily Somali and Borana livestock merchants, typically outcompete native merchants in export markets. When it comes to the viability of raising and selling livestock in the county of Turkana, the majority of study participants feel that local markets are weak and easy to take over, and bringing in new businesses is risky for the local economy.

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county of Turkana, the majority of study participants feel that local markets are weak and easy to take over, and bringing in new businesses is risky for the local economy. Other than pastoral foods, most other foods and goods are too expensive for most households to buy, so most of them go hungry during droughts.

During the plentiful wet seasons, pastoralist households consume a large amount of meat and other livestock products. Other ethnic communities in Turkana favor cereals, poultry products, vegetables, and legumes as staple foods, which influences the purchase of animals and livestock products. In regions dominated by pastoralist groups, the prevalence of livestock markets, butcheries, and cafes leads to high consumption of animal products.

Participants in the primary study expressed concern that if local merchants are exploited, they will become suppliers and subordinate to superior merchants if new entrants continue to expand their competitive advantages and market niches. To gain access to secondary, tertiary, or terminal markets, high-capitalized traders are said to rely on low-capitalized traders as their primary market suppliers. High-capital traders trade high-quality stocks for things like food and clothes, and they can buy almost all the animals on the market. This makes it hard for native traders who only have a few stocks to compete in markets.

If local traders can't meet the increased demand caused by newcomers to their markets and communities, it is feared that this will continue to let outside traders control and dominate local animal markets and product consumption outlets, making it harder for local entrepreneurs to grow and support their native markets and local economies.

In primary livestock markets, only traders with disproportionately greater operating capital engage in competition. Traders are less competitive in the Lorugum and Lopur primary markets because there are fewer market opportunities to compete for. In addition, some external traders purchase animals from production sites as opposed to the authorized market yards, where animals are sold by principal traders.

This strategy competes with traders on the primary market by disorganizing marketing activities and increasing the likelihood of acquiring stolen animals. Due to the differences among traders, these market structures can be a source of conflict. It is challenging to track down purchased livestock.

According to the study, the majority of livestock traders who primarily operate in primary and secondary markets view one another as fellow traders rather than competitors. Trader misconduct, on the other hand, causes some traders to lose faith in the trading system. Many primary market traders are comparable and operate at the same level, allowing them to reach agreements on a variety of marketing-related issues. The familiarity between traders in primary markets improves market order.

The majority of traders belong to the same tribe or community. This form of homogeneity creates harmony, good communication, and understanding among traders. Although surplus livestock is accumulated in local markets, there are limited instances of market misconduct attributable to excessive competitive rivalry in primary markets. Because they have a direct link to terminal markets, independent traders with substantial fiscal resources have a big advantage over local traders like Somali traders, who buy and sell animals with cash and stored food.

In Southern Turkana's primary livestock markets, namely Lokichar and Kalemng'orok, trekking is a common method of transporting animals to local markets, whereas tertiary traders routinely transport livestock to terminal markets by truck. Kalemng'orok and Lokichar are the only secondary livestock markets that regularly export livestock, but the cost of doing so is too high for local traders to sustain and make a living on.

In terms of recognizing the economic value of their livestock resources, the survey revealed that livestock traders are the most fortunate herders. Numerous merchants on secondary markets assert that the sale of livestock has contributed to regional economic development. Unfortunately, none of the respondents knew of any livestock marketing strategies that had been developed and implemented in the market. The most memorable aspect of their transactions is the buyer-seller method, which is also viewed as exploitative if sellers are less knowledgeable.

Due to the lack of transparent livestock trade platforms, the objectives, resources, and decision-making outcomes of the primary markets' livestock businesses have been compromised. Despite this, respondents are confident that traditional livestock trading continues in the Kenyan county of Turkana. Respondents are adamant that the national government and the county government of Turkana must make big investments in the livestock sector for livestock resources to improve the social and economic well-being of people and economies that depend on livestock and to make it easier to sell livestock in Turkana County.

While the jurisdictional market, their capital, and their market access determine the bargaining power of traders, livestock traders seek a stranglehold on the markets at lower levels. Those market participants with long-standing relationships move livestock resources up the market value chain. Several of these traders have demonstrated efficient livestock trading procedures. When it comes to purchasing animals, they compete.

The value of an animal is determined by its size, physical condition, and length of service in the herd. Regardless of market data on prices and supply and demand relationships, they determine prices based on the condition of the animal's body. According to the findings of this study, long-time traders in the livestock industry are accustomed to paying above-market prices. Prior to reaching an agreement, proposed prices are primarily negotiated.

Study participants reiterated that due to a lack of formalized and integrated business models for livestock marketing activity in Turkana, external traders exploit producers and traders on the primary market by manipulating the trading process. As a result of these kinds of activities, wealthy merchants tend to control the local market. This is because they have better access to capital resources, such as business capital, knowledge and skills in livestock trade, and experience selling livestock in different situations.

To persuade livestock producers to sell their animals to them, they visit marketplaces with slightly pricier offers. This is detrimental to local merchants and their businesses. The study found that many traders frequently inquire about the purchase price of animals, the required markup, and the extent of markup negotiation from other traders. Due to competition, animals from traders and producers on the primary market

are not negotiated for on the secondary market; rather, they are purchased at the prevailing lowest price.

Local livestock farmers dispute the viability of trading animals at market prices. Although the majority of Turkana's markets have underperformed, there are a few that have strong market structures and performance. They have operational management committees, bylaws, and market regulations in addition to structured livestock market activities, market days, and a few intermediaries. In addition to helping them come up with ways to deal with market problems as little as possible, these markets make it much easier for them to sell livestock products with added value.

4.2 Quantitative Research Results

4.2.1 Reliability of Research Instruments

The research instrument's reliability was assessed during the pilot stage of the study, when seventeen (17) people (10% of the secondary study participants, $n = 168$) were randomly selected from the study sample and given the research instrument. The results of the reliability tests are as follows:

4.2.1.1 Test-Retest Reliability Analysis. Test-retest reliability coefficients (also called coefficients of stability) was analyzed by computing the correlation coefficient from two sets of data that were generated during the pilot study. The test-retest reliability coefficient of 0.821 was computed. According to Everitt and Skrondal (2010), retest reliability coefficients should be as follows: 1 (perfect reliability), ≥ 0.9 (excellent reliability), $\geq 0.8 < 0.9$ (good reliability), $\geq 0.7 < 0.8$ (acceptable reliability), $\geq 0.6 < 0.7$ (questionable reliability), $\geq 0.5 < 0.6$ (poor reliability), < 0.5 (unacceptable reliability), and 0 (no reliability). This implies that the reliability of the instrument used in this study was good.

Table 4.2.1-1: Test-retest reliability analysis

		First set of data	Second set of data
First set of data	Pearson Correlation	1	.821**
	Sig. (2-tailed)		.049
	Number of variables	22	22
Second set of data	Pearson Correlation	.821**	1
	Sig. (2-tailed)	.049	
	Number of variables	22	22

****.** Correlation is significant at the 0.01 level (2-tailed).

4.2.1.2 Cronbach's Alpha Reliability Analysis. Reliability refers to the extent to which data collection techniques or analysis procedures yield consistent findings (Sürücü & Maslakçi, 2020). In this study, each scale was evaluated for its reliability. A value of Cronbach's alpha ratio of 0.7 or more was considered an appropriate indicator that a scale is reliable. Every item that was not contributing strongly to that scale was dropped. This research adopted the Likert type of scale as the instrument for data collection. The study adopted measures from previous studies that had been tested for reliability. This followed adjustments to the measurement instrument so as to ensure they were relevant in the research.

Below are the reliability coefficient analysis results (using Cronbach's alpha). The results are generated from all the major sections of the questionnaire that are taken to measure the same thing (except the demographic sections of the questionnaire). The idea was to tell if the items within each group of items could be measuring the same thing and, when repeated again and again, could be assumed to yield consistent findings.

Table 4.2.1-2: Cronbach's Alpha for the Questionnaire

Scale	Number of items	Cronbach's Alpha
Livestock production and market access	7	0.818
Trader's competitive rivalry	9	0.836
Demand and supply	3	0.883
Theory and livestock production and marketing	3	0.792
Overall		0.832

Using Cronbach's alpha, an index of 0.832 for the questionnaire was established. The reliability results exceeded the 0.7 level of acceptability, revealing a very high degree of reliability. This implied that the reliability of the instrument was relevant. According to Kothari (2004), the instrument's reliability can be considered satisfactory.

4.2.2 Quantitative Data Analysis Results

4.2.2.1 Demography Characteristics of Traders. The average age of the respondents in the three markets was similar: respondents were 37.10 years old on average, with a standard deviation of 8.96 years and a range of 19 to 70 years. Most (85.1%) of the respondents were male. Overall, 75.0% of the respondents were non-illiterate, with only 4.8% of them having a certificate level of education. On average, respondents had 12.59 years of experience in livestock production, with a standard deviation of 6.16 years. Most (95.2%) of the respondents were livestock keepers, and the finding was similar across the three markets (Table 4.2.2-1).

Table 4.2.2-1: Descriptive Statistics on demographics and socioeconomic characteristics

Market	Overall	Kakuma Livestock Market	Kalemng'orok Livestock Market	Lokichar Livestock Market
Demographic characteristics	n=168	n=56	n=56	n=56
Age	37.1(8.96)	38.75(7.81)	36.88(10.68)	35.68(7.99)
Male (%)	85.1	80.4	87.5	87.5
Female (%)	14.9	19.6	12.50%	12.5
Education level (%)				
Adult Education	20.2	26.8	17.9	16.1
Certificate	4.8	5.4	3.6	5.4
Non-literate	75	67.9	78.6	78.6
Years in livestock marketing	12.59(6.16)	13.67(4.85)	13.41(6.24)	10.7(6.85)
Main occupation				
Business	4.8	5.4	3.6	5.4
Livestock keeping	95.2	94.6	96.4	94.6

Note: Figures in the parentheses are the standard deviations associated with the means for the variables indicated.

Testing for statistically significant differences across the three markets, a Kruskal-Wallis H test was used to detect significant differences between the numeric variables across the three markets, while a Chi-square test was used to test for significant differences in categorical variables across the three markets. Variables subjected to the Kruskal-Wallis test included age and years in livestock marketing (Appendix E). A chi-squared test determined significant differences in the gender of respondents, their education level, and their main occupation. A Kruskal-Wallis test revealed that the mean

number of years in livestock production was statistically different across the three markets (p -value = 0.029). Respondents in Kakuma Livestock Market had the highest mean in livestock marketing (13.67 years), with livestock traders in Lokichar Livestock Market having the lowest mean of 10.70 years. The average age of respondents was not statistically different across the three markets (p -value = 1.00).

4.2.3 Livestock Production and Market Access

Most (29.8%) of the respondents were neutral about the statement that livestock production is real and progressive. Whereas 22.6% of the total respondents agreed with the statement, an additional 9.5% of them strongly agreed with it. Up to 22.6% and 15.5% of the respondents disagreed and strongly disagreed with the statement, respectively. Overall, 29.2% and 28.0% of the total respondents disagreed and strongly disagreed, respectively, with the statement that there are enormous livestock production factors (pasture, water). Whereas 25.6% of the respondents were neutral about the statement, 14.3% and 3% of the respondents agreed and strongly agreed with the statement, respectively.

Regarding the statement that livestock marketing is large in scope and size, 27.4% of respondents indicated a neutral opinion. Whereas 21.4% of the total respondents agreed with the statement, an additional 16.1% of the respondents strongly agreed with the statement. Up to 22.0% and 13.1% of the respondents disagreed and strongly disagreed with the statement, respectively. Overall, 32.1% of the respondents strongly agreed with the statement that livestock producers, traders, and consumers were benefiting. While 20.8% of the respondents agreed with the statement, 23.2% of them

were neutral about it. The remaining 14.9% and 8.9% of the respondents disagreed and strongly disagreed with the statement, respectively.

Most (75.6%) of the respondents strongly disagreed with the statement that value addition for livestock productivity was considered. An additional 8.9% of the respondents disagreed with the statement. Up to 12.5% of the respondents were neutral about the statement, while only 3.0% of the respondents agreed with the statement. There was, however, no respondent who strongly agreed with the statement. Up to 35.1% and 19.0% of the respondents strongly disagreed and totally disagreed, respectively, with the statement that livestock marketing systems are efficient, competitive, and sustainable.

An additional 19% of the respondents disagreed with the statement. Up to 25.6%, 14.9%, and 5.4% of the respondents were neutral, agreed, and strongly agreed with the statement, respectively. Most (46.4%) of the respondents strongly disagreed with the statement that research and market surveys are regularized. An additional 23.8% of the respondents disagreed with the statement (Table 4.2.3-1).

Table 4.2.3-1: Livestock production and market access

Statements	SD	D	N	A	SA
Livestock production is real and progressive	15.5	22.6	29.8	22.6	9.5
Enormous livestock factors of production (pasture, water)	28.0	29.2	25.6	14.3	3.0
Livestock marketing is large in scope and size	13.1	22.0	27.4	21.4	16.1
Livestock producers, traders and consumers benefitting	8.9	14.9	23.2	20.8	32.1
Value addition for livestock productivity considered	75.6	8.9	12.5	3.0	0.0
Livestock marketing systems are efficient, competitive, and sustainable	35.1	19.0	25.6	14.9	5.4
Research and market surveys are regularized	46.4	23.8	20.2	7.7	1.8

Key: SD=Strongly disagree; D=Disagree; N=Neutral; A= Agree; SA= Strongly agree
 Note: *Statements 1.3, 1.5 and 1.7 were excluded from the analysis*

The sampled respondent's scores on the seven (7) statements retained on livestock production and market access is summarised in Table 4.2.3-2. The sampled respondents scored an overall mean of 2.51 (equivalent to neutral opinion score) with a standard deviation of 0.61. The highest and the lowest scores were 3.86 and 1.14. Also provided on the Table is the one-way ANOVA results for the difference in livestock production and market access scores of the three livestock markets (Kakuma, Kalemng'orok and Lokichar).

The one way analysis of variance revealed a significant difference between the respondent scores ($F(2,165) = 34.253$; $P\text{-value} = 0.000$). An analysis of average mean score of the livestock production and market access in the sampled livestock markets indicated that Kakuma Livestock market had the highest mean of 2.89 (with a standard deviation of 0.50) while Kalemng'orok market had lowest mean of 2.09 (with a standard deviation of 0.50). Lokichar market had a mean of 2.54 (with a standard deviation of 0.54) (Table 4.2.3-2).

Table 4.2.3-2: Summary of livestock production and market access scale

Statements	N	Minimum	Maximum	Mean	Std. Dev.
Livestock production is real and progressive	168	1.00	5.00	2.88	1.20
Enormous livestock factors of production (pasture, water)	168	1.00	5.00	2.35	1.12
Livestock marketing is large in scope and size	168	1.00	5.00	3.05	1.27
Livestock producers, traders and consumers benefitting	168	1.00	5.00	3.52	1.32
Value addition for livestock productivity considered	168	1.00	4.00	1.43	0.82
Livestock marketing systems are efficient, competitive, and sustainable	168	1.00	5.00	2.36	1.25
Research and market surveys are regularized	168	1.00	5.00	1.95	1.07
Overall	168	1.14	3.86	2.51	0.61
1 Kakuma livestock market	56	1.57	3.86	2.89	0.50
2 Kalemng'orok livestock market	56	1.14	3.00	2.09	0.50
3 Lokichar livestock market	56	1.43	3.57	2.54	0.54

Calculated $F(2,165) = 34.253$; critical $F(2,165) = 3.050$; P-value = 0.000

A post hoc analysis results for multiple comparison using Tukey HSD indicated a significant difference in the mean score of livestock production and market access between all markets, that is, Kakuma and Kalemng'orok livestock markets, Kakuma and Lokichar livestock markets, as well as, Kalemng'orok and Lokichar livestock markets at 5% level (Table 4.2.3-3).

Table 4.2.3-3: Post hoc multiple comparisons

(I) Livestock Market	(J) Livestock Market	Mean Difference (I-J)	Std. Error	Sig.
1 Kakuma Market	2 Kalemng'orok Market	.80357*	.09731	.000
	3 Lokichar Market	.35459*	.09731	.001
2 Kalemng'orok Market	1 Kakuma Market	-.80357*	.09731	.000
	3 Lokichar Market	-.44898*	.09731	.000
3 Lokichar Market	1 Kakuma Market	-.35459*	.09731	.001
	2 Kalemng'orok Market	.44898*	.09731	.000

4.2.4 Traders' Competition and Rivalry

The majority of the respondents were neutral about the statement that livestock producers and traders relate well, as represented by 31.5% of the total responses. This was closely followed by respondents who agreed (29.2%) and strongly agreed (19.6%) with the statement. It was just 11.9% and 7.7% of the respondents who disagreed and strongly disagreed with the statement, respectively. Most (34.5%) of the respondents agreed with the statement that livestock traders relate well among themselves. An additional 23.2% of the respondents strongly agreed with the statement. Most (35.7%) of the respondents strongly disagreed with the statement that competition is beneficial to individuals and the subsector.

13.7% of the respondents disagreed with the statement. Up to 25.6% of the respondents were neutral about the statement. Overall, 24.4% of the respondents strongly agreed with the statement that competitive rivalry is evident in livestock markets. An additional 23.8% of the respondents agreed with the statement. Regarding opinion on whether competitive rivalry affects market performance, most (37.5%) of the respondents

strongly agreed with the statement. An additional 19.6% of the respondents agreed with the statement, while 17.9% were neutral about it.

Most (387.%) of the respondents strongly agreed with the statement that competitive rivalry is instigated by traders for their own benefit. An additional 25% of the respondents agreed with the statement, while 23.8% of the respondents were neutral about the statement. Up to 34.5% of the respondents strongly disagreed with the statement that a system is in place to regulate competition in markets. An additional 20.8% of the respondents disagreed with the statement, with 20.8% of the respondents having a neutral opinion about the statement.

As represented by 26.2% of the total responses, the majority of the respondents strongly disagreed with the statement that competition is strengthening markets. An additional 19.6% of the respondents disagreed with the statement. About 20.8% of the respondents were neutral about the statement. As represented by 28% of the total responses, the majority of the respondents strongly disagreed with the statement that competition is reducing livestock prices in markets. An additional 19% of the respondents disagreed with the statement. About 23.2% of the respondents were neutral about the statement (Figure 4.2.4-1).

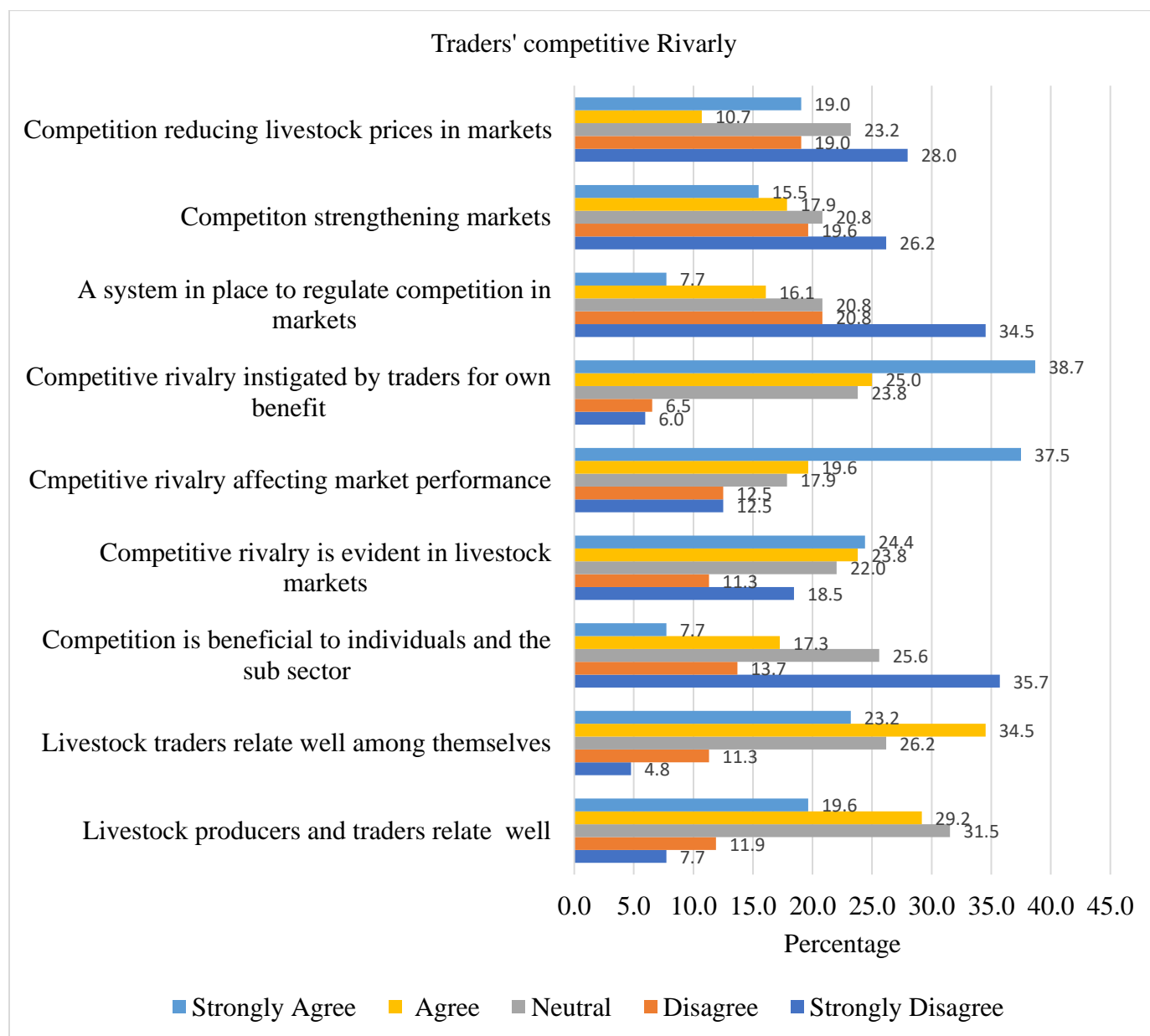


Figure 4.2.4-1: Traders competitive rivalry variables relations

The sampled respondents' scores on the nine (9) statements on traders' competitive rivalry are summarized in Table 4.2.4-1. The sampled respondents scored a mean of 3.12 with a standard deviation of 0.63. The lowest and highest scores were 1.11 and 4.89. The one-way ANOVA was used to determine whether there was a significant difference in the mean score of traders' competitive rivalry across the three markets (Table 4.2.4-1). The one-way analysis of variance revealed a significant difference between the respondent scores ($F(2,165) = 39.966$; $P\text{-value} = 0.000$).

An analysis of the average mean score of the traders' competitive rivalry in the sampled livestock markets indicated that respondents in Kakuma Livestock Market had the highest mean of 3.62 (with a standard deviation of 0.49) while respondents in Lokichar Livestock Market had the lowest mean of 2.79 (with a standard deviation of 0.44). Kalemng'orok Livestock Market had a mean of 2.79 (with a standard deviation of 0.62).

Table 4.2.4-1: Summary of Traders Competitive Rivalry

Statements	N	Minimum	Maximum	Mean	Std. Dev.
Livestock producers and traders relate well	168	1.00	5.00	3.41	1.16
Livestock traders relate well among themselves	168	1.00	5.00	3.60	1.11
Competition is beneficial to individuals and the sub sector	168	1.00	5.00	2.48	1.34
Competitive rivalry is evident in livestock markets	168	1.00	5.00	3.24	1.42
Competitive rivalry affecting market performance	168	1.00	5.00	3.57	1.42
Competitive rivalry instigated by traders for own benefit	168	1.00	5.00	3.84	1.19
A system in place to regulate competition in markets	168	1.00	5.00	2.42	1.32
Competition strengthening markets	168	1.00	5.00	2.77	1.41
Competition reducing livestock prices in markets	168	1.00	5.00	2.74	1.46
Overall	168	1.11	4.89	3.12	0.63
1 Kakuma Livestock Market	56	2.67	4.89	3.62	0.49
2 Kalemng'orok Livestock Market	56	1.11	3.89	2.79	0.62
3 Lokichar Livestock Market	56	2.11	4.33	2.94	0.44

Calculated $F(2,165) = 39.966$; critical $F(2,165) = 3.050$; P-value = 0.000

A post hoc analysis results for multiple comparison using Tukey indicated a significant difference in the mean score of respondents in Kakuma and Kalemng'orok Livestock Market, as well as Kakuma and Lokichar livestock Market at 5% level. There was however no significant difference between Kalemng'orok and Lokichar Livestock Market (Table 4.2.4-2).

Table 4.2.4-2: Multiple comparisons of traders competitive rivalry

(I) Livestock Market	(J) Livestock Market	Mean Difference (I-J)	Std. Error	Sig.
1 Kakuma Market	2 Kalemng'orok Market	.82738*	.09849	.000
	3 Lokichar Market	.67460*	.09849	.000
2 Kalemng'orok Market	1 Kakuma Market	-.82738*	.09849	.000
	3 Lokichar Market	-.15278	.09849	.270
3 Lokichar Market	1 Kakuma Market	-.67460*	.09849	.000
	2 Kalemng'orok Market	.15278	.09849	.270

4.2.5 Supply and Demand Relations

Most respondents (42.3%) agreed that season-long livestock marketing is exercised in their locality. Whereas most (33.3%) of the respondents totally agreed that traders have sustained and diversified their investments through livestock marketing initiative, Most (43.5%) of respondents had a neutral opinion that prices of livestock and livestock products are consistent and affordable throughout the year (Figure 4.2.5-1).

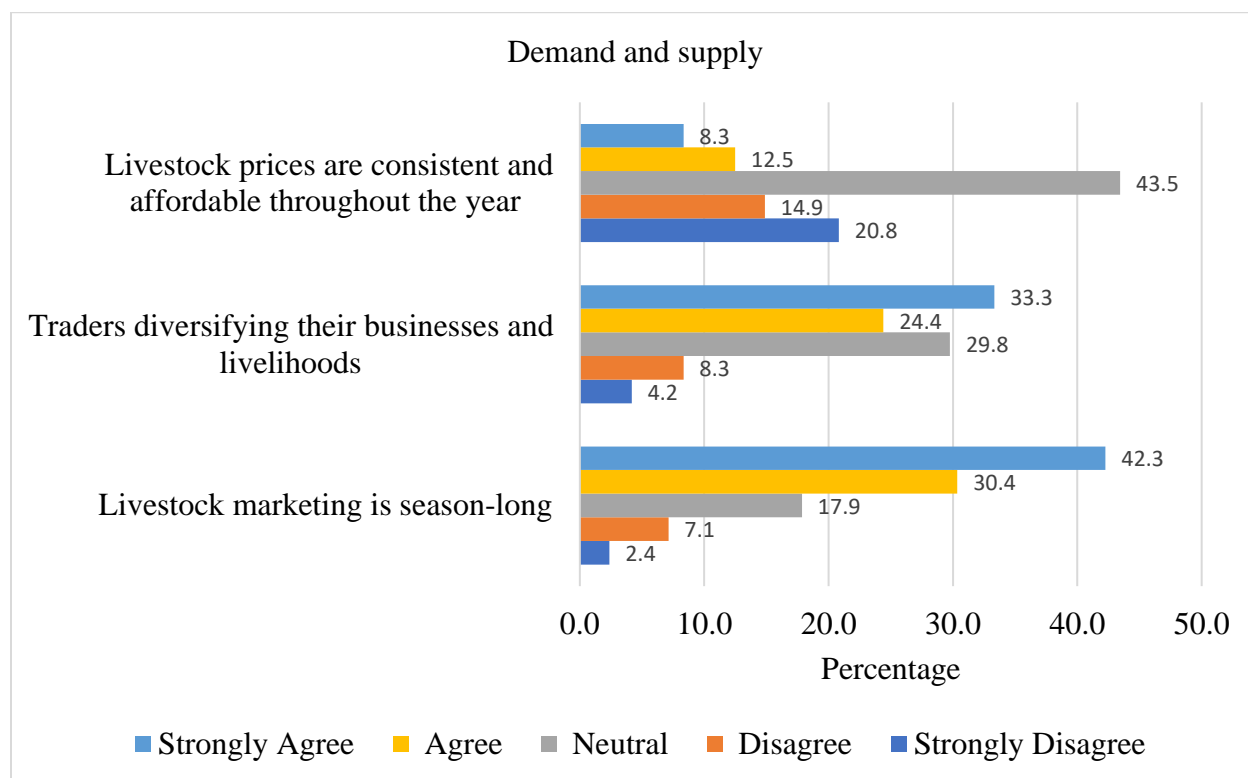


Figure 4.2.5-1: Supply and demand variables relations

An analysis of the average mean score of the balance between supply and demand in the livestock market indicated that respondents in the Kakuma livestock market had the highest mean of 2.74, while respondents in the Kalemng'orok livestock market had the lowest mean of 2.17. To determine whether there was a significant difference in the mean score of supply and demand in the livestock market across the three markets, a one-way analysis of variance was used. The analysis results revealed a significant difference between the respondent scores ($F(2,165) = 25.124$; $P\text{-value} = 0.000$) (Table 4.2.5-1).

Table 4.2.5-1: Summary of supply and demand relations in markets

Statements	N	Minimum	Maximum	Mean	Std. Dev.
Livestock marketing is season-long	168	1.00	5.00	4.03	1.05
Traders diversifying their businesses and livelihoods	168	1.00	5.00	3.74	1.13
Livestock prices are consistent and affordable throughout the year	168	1.00	5.00	2.73	1.17
Overall	168	1.00	5.00	3.50	0.83
1 Kakuma Livestock Market	56	2.33	5.00	3.74	0.53
2 Kalemng'orok Livestock Market	56	1.00	4.67	2.93	0.88
3 Lokichar Livestock Market	56	2.33	5.00	3.82	0.75

Calculated $F(2,165) = 25.124$; critical $F(2,165) = 3.050$; P-value = 0.000

A post hoc analysis for multiple comparisons using Tukey HSD indicated a significant difference in the mean score of respondents in Kakuma Livestock Market and Kalemng'orok Livestock Market, and Kalemng'orok Livestock Market and Lokichar Livestock Market at 5% level. There was however no significant difference in scores for respondents in Kakuma Livestock Market and Lokichar Livestock Market (Table 4.2.5-2).

Table 4.2.5-2: Post Hoc Multiple Comparisons

(I) Market_Two Market	(J) Market	Market_TwoMean Difference (I-J)	Std. Error	Sig.
1 Kakuma Market	2 Kalemng'orok Market	.80952*	.13860	.000
	3 Lokichar Market	-.07738	.13860	.842
2 Kalemng'orok Market	1 Kakuma Market	-.80952*	.13860	.000
	3 Lokichar Market	-.88690*	.13860	.000
3 Lokichar Market	1 Kakuma Market	.07738	.13860	.842
	2 Kalemng'orok Market	.88690*	.13860	.000

*. The mean difference is significant at the 0.05 level.

4.2.6 Theory and Livestock Production and Marketing

The majority of the respondents strongly agreed that competition is improving innovation in livestock marketing, as represented by 38.1% of the total responses. About 26.8% of the respondents agreed with the statement, while 25.0% were neutral. On the other hand, about 6.0% and 4.2% strongly disagreed and disagreed with the statement, respectively.

This study wanted to know how respondents reacted to the statement, "Corporate theories and models are applied in livestock marketing." The majority of the respondents were neutral about the statement. As far as the balance of respondents who agreed and disagreed with the statement was concerned, this study noted that more respondents disagreed with the statement.

Overall, 17.9% and 26.2% of the respondents disagreed and strongly disagreed, respectively. On the other hand, about 17.3% and 3.0% agreed and strongly agreed with the statement, respectively. The majority of the respondents (37.5%) disagreed with the statement that formulated livestock marketing strategies are working. A further 18.5% of

the respondents strongly disagreed with the statement. About 24.4% agreed with the statement. It was just 13.7% and 6.0% of the respondents who agreed and strongly agreed with the statement, respectively (Figure 4.2.6-1).

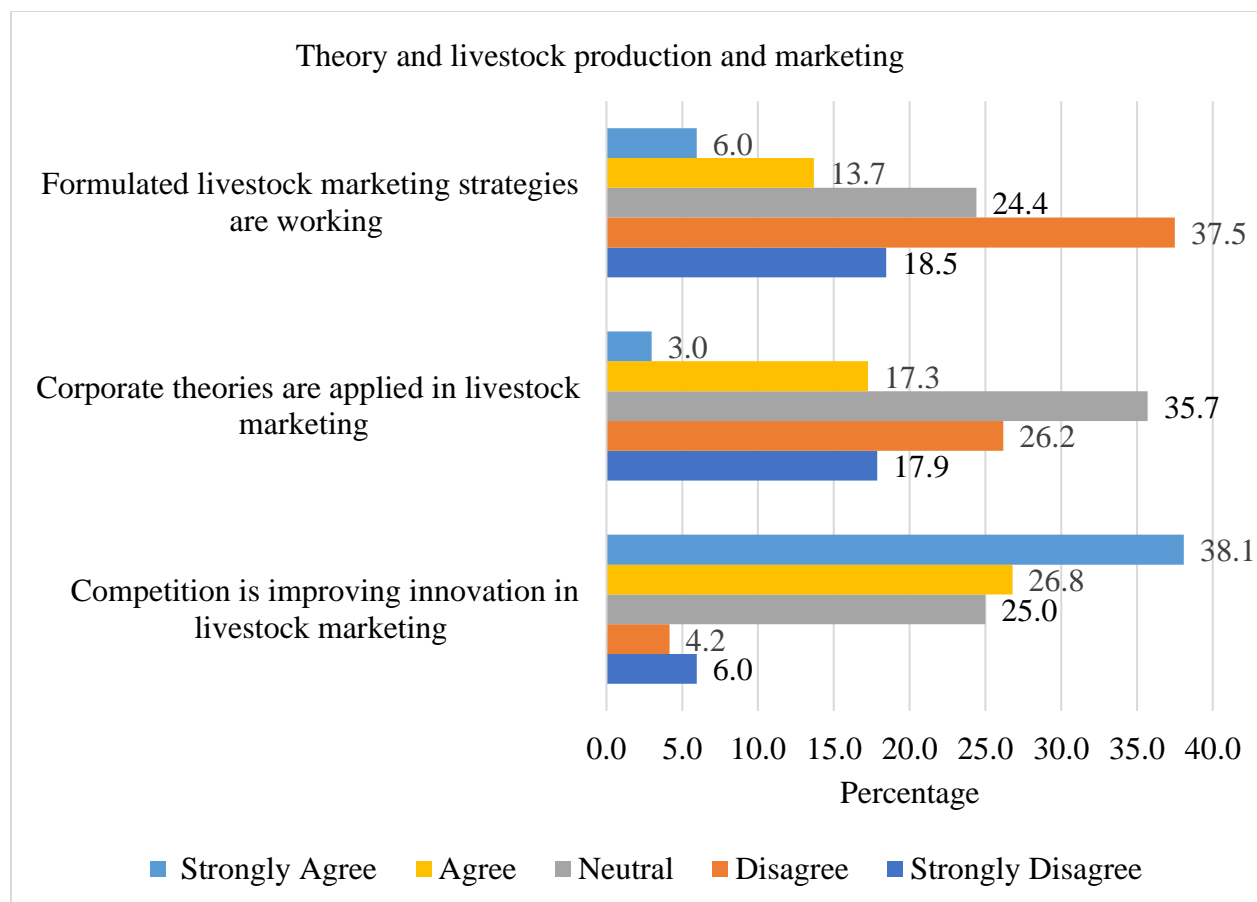


Figure 4.2.6-1: Theory, livestock production and marketing variables relations

4.2.6.1 Summary of Retained Statements on Theory and Livestock Production and Marketing.

The mean score for the statements on theory and livestock production and marketing was computed and compared across the three livestock markets. The results are summarized in Table 4.2.6-1. The statement "Competition is improving innovation in livestock marketing" had a mean of 3.87 and a standard deviation of 1.15. The statement "Corporate theories are applied in livestock marketing" scored a mean of 2.61 with a standard deviation of 1.06. The statement, "Formulated livestock marketing strategies are working," scored a mean of 2.51 with a standard deviation of 1.12. On all three statements, the overall sample scored a mean of 3.00 with a standard deviation of .86.

One-way ANOVA results for the difference in respondents' opinions on theories on livestock production and marketing across the three livestock markets (Kakuma, Kalemng'orok, and Lokichar) are provided in Table 4.2.6-1. A significant difference in the scoring of the three markets was observed since the calculated F-ratio (20.528) was greater than the critical F-ratio (3.05). Lokichar Livestock Market scored the highest (a mean of 3.40 with a standard deviation of 0.59). The second-ranked market was Kakuma Livestock Market, scoring the highest (a mean of 3.11 with a standard deviation of 0.85). The last market in the ranking was Kalemng'orok Livestock Market (mean of 2.48 with a standard deviation of 0.85).

Table 4.2.6-1: Summary of retained statements on theory and livestock production and marketing

Statements	N	Minimum	Maximum	Mean	Std. Dev.
Competition is improving innovation in livestock marketing	168	1.00	5.00	3.87	1.15
Corporate theories are applied in livestock marketing	168	1.00	5.00	2.61	1.06
Formulated livestock marketing strategies are working	168	1.00	5.00	2.51	1.12
Overall	168	1.00	4.67	3.00	.86
Kakuma Livestock Market	56	1.00	4.67	3.11	0.85
Kalemng'orok Livestock Market	56	1.00	4.33	2.48	0.85
Lokichar Livestock Market	56	2.33	4.67	3.40	0.59

Calculated $F(2,165) = 20.528$; critical $F(2,165) = 3.050$; P-value = 0.000

The post hoc analysis results using the Tukey HSD results (Table 4.2.6-2) showed no significant difference between Kakuma and Lokichar Livestock Markets in the scoring since the mean difference of -.286 was not significant.

Table 4.2.6-2: Multiple Comparisons Tukey - HSD

(I) Market_Two Market	(J) Market	Market_TwoMean Difference (I-J)	Std. Error	Sig.
1 Kakuma Market	2 Kalemng'orok Market	.63095*	.14640	.000
	3 Lokichar Market	-.28571	.14640	.128
2 Kalemng'orok Market	1 Kakuma Market	-.63095*	.14640	.000
	3 Lokichar Market	-.91667*	.14640	.000
3 Lokichar Market	1 Kakuma Market	.28571	.14640	.128
	2 Kalemng'orok Market	.91667*	.14640	.000

*. The mean difference is significant at the 0.05 level.

4.2.6.2 Effects of Traders' Competitive Rivalry on Livestock Production and Market Access. Results of simple linear regression on the effect of traders' competition and rivalry on market access and opportunities are presented in Table 4.2.6-3. The results reveal that traders' competition and rivalry had a significant effect on livestock production and market access in the livestock market in pastoral areas at a 5% level. The calculated F-ratio (1, 166) for the fitted model was 30.642, with a probability value of 0.000. The adjusted R² of 0.151 shows that traders' competition is a factor in 15.1% of livestock production and market access, even though there are other things that affect livestock production and market access as well.

The coefficient of trader's competition and rivalry of 0.381 means that, a one unit increase in of trader's competition and rivalry results to an increment of 0.381 in livestock production and market access. Therefore, competitive rivalry is an issue in pastoral regions livestock markets.

Table 4.2.6-3: Effects of traders competitive rivalry on livestock production and markets

Variable	Coef.	Std. Err.	T	P>t
Constant	1.319	.219	6.028	.000
Trader's competition and rivalry	.381	.069	5.536	.000

F (1, 166) = 30.642, Prob> F = 0.000, R-squared = .156, Adj R-squared= .151

4.2.6.3 Effects of Trader's Competition and Rivalry on Demand and Supply.

Results in Table 4.2.6-4 reveal that traders' competition and rivalry had a significant effect on the balance between supply and demand in the livestock market in pastoral areas at the 5% level. The calculated F-ratio (1, 166) for the fitted model was 5.914 with a probability value of 0.016. The R² was 0.029%, an indication that traders' competition and rivalry contribute 2.9% to demand and supply. The coefficient of traders' competition and rivalry of 0.245 implies that a one-unit increase in traders' competition and rivalry results in a 0.245 increase in demand and supply. Based on these results, traders' competitive rivalry has a significant effect on the balance between supply and demand in the livestock market in pastoral areas.

Table 4.2.6-4: Effects of traders competitive rivalry on balance between supply and demand in markets in pastoral areas

Variable	Coef.	Std. Err.	T	P>t
Constant	2.737	.320	8.551	.000
Trader's competition and rivalry	.245	.101	2.432	.016

F (1, 166) = 5.914, Prob> F = 0.016, R-squared = .034, Adj R-squared= .029

4.2.6.4 Effects of Trader's Competitive Rivalry on Theory and Livestock Production and Marketing. Results in Table 4.02.6-6 reveal that the coefficient for traders' competitive rivalry was not statistically significant. The F-ratio (1, 166) for the fitted model was 2.652, with a probability value of 0.105. The findings support the theory that competitive rivalry among traders had no significant impact on livestock production and marketing. Based on these results, the null hypothesis was not rejected. Thus, traders' competitive rivalry has no significant effect on theory or livestock production and marketing.

Table 4.2.6-5: Effects of traders competitive rivalry on theory and livestock production and marketing

Variable	Coef.	Std. Err.	T	P>t
Constant	2.465	.334	7.380	.000
Trader's competitive rivalry	.171	.105	1.628	.105

F (1, 166) = 2.652, Prob> F = 0.105, R-squared = .016, Adj R-squared= .010

4.3 Findings from Tertiary Study Participants (Government and CSOs personnel)

Government and civil society members, purposively selected as tertiary participants, participated in a research study in which a study schedule was administered one-on-one and online. The study for this category of participants involved the investigation of the four (4) study objectives from a policy and programmatic perspective. The respondents were to give their views on the theory and practice of livestock production, marketing, and trade in the context of pastoral areas, drylands, and a dynamic business environment. The findings of this level of research fall into the following categories:

4.3.1 Livestock Production Situation in Turkana, Kenya

Data collected on Turkana County from respondents and evident from the literature showed that the Turkana land area is 77,000 km², or 13.4% of Kenya's land area, and is home to a variety of livestock species, including 1,534,612 livestock, 3,519,148 sheep, 5,994,881 goats, 832,462 camels, 558,189 donkeys, 165,337 indigenous poultry, 15,475 commercial poultry, and 32,581 beehives, according to the Department of Livestock Production Records (2020).

The county is situated in the Rift Valley Province of Kenya, with Uganda, South Sudan, and Ethiopia to the west, north, and northeast, respectively. Turkana is the largest county in Kenya and the poorest of the country's 47 counties, with a gross domestic product of \$1,568 million (PPP). The overall population density is 13 people per square kilometer, with 926,976 people in total (KNBS-Census, 2019). The annual precipitation ranges from 120 to 450 millimeters, and the temperature ranges from 240 to 410 degrees Celsius.

Livestock husbandry is the primary production system, an economic pillar, and a significant source of income for livestock keepers. In the payment of bride prices, fines, gifts, and cash saved by livestock keepers as livestock, livestock functions as a medium of exchange. According to the Turkana Chapter of the Chamber of Commerce, Turkana's livestock industry can contribute up to \$60 million to the well-being of its people each year.

The livestock industry's capacity to alleviate poverty and contribute to the economic development of Turkana is valued by the livestock development stakeholders. National and global development frameworks, such as the Sustainable Development Goals (SDGs), Vision 2030, the National Livestock Development Policy, the Turkana County Integrated Development Plan (CIDP II), the Kenya National Adaptation Plan 2015–2030, and others, are among the strategic frameworks for livestock development in Kenya. These frameworks recognize the importance of animal agriculture development for the food, income, and nutrition security of the population.

The newly established Kibish sub-county is one of six sub-counties that make up the expansive Turkana North sub-county. Three zones comprise Turkana County: the greater north, the greater central, and the greater south. The climate variability, urbanization, livelihood activities, commerce and trade, and human settlement challenges of resource-based conflicts such as land disputes and livestock rustling are unique to each zone, especially when compared to neighboring nations and communities. Thirty (30) administrative wards have been set up so far, and each one has a group of political representatives who work with government departments, help Turkana County residents with public services, and support development programs.

The objective of the Turkana County Livestock Development Strategy (TCLDS) is to position the county's livestock sector to significantly contribute to Kenya's Vision 2030 economic growth target of 10%. The county's strategy aims to unify livestock development goals and create strong synergies between stakeholders by mapping and describing many development plans and investment plans.

The formation of county livestock steering committees aims to make livestock production and markets more efficient, robust, high-yielding, and sustainable. All seven sub-counties of Turkana County practice pastoralism and agro-pastoralism, which support 70% of the county's population. The fact that Turkana people need livestock to survive shows how important livestock resources are to their well-being.

Pastoralism, agro-pastoralism, fishing, and urban residents are the four primary production systems in Turkana County, with the majority of the population being pastoralists and agro-pastoralists, who are primarily livestock keepers and crop producers. Historically, Turkana had fewer fishermen than it does today. Relocation decisions were made to protect vulnerable Turkana residents from the effects of the country's worst droughts, which happened in 1960 (Namotor), 1980 (Lochuu), and 2007 (Logaara).

The most pressing issues confronting Turkana's livestock industry are low livestock productivity due to recurrent droughts and the dangers that accompany them. It also includes bad livestock breeds and breeding practices, bad livestock husbandry, diseases and pests, lack of security, uncoordinated efforts to sell livestock, a lot of competition, and not enough strategies to make livestock programs in Turkana and many other pastoral areas of Kenya more competitive and profitable.

Significant obstacles to livestock development include the absence of insurance services in Arid and Semi-Arid Lands (ASAL), limited access to credit facilities, and an unclear legal and policy framework. Because of these problems, Kenya's dryland people, who depend on the livestock sector and subsector, haven't been able to make the social and economic changes they want.

4.3.2 The State of the Turkana Pastoral Economy

Pastoralists in Turkana place a high value on their livestock, which they have produced using a socioeconomic framework and traditionally structured environmental utilization and management techniques. Each livestock resource is utilized primarily for sustenance and prestige, with sales occurring only in times of emergency or to meet essential household needs. Animal keepers raise animals for their meat, milk, blood, hides and skins, oil and fats, and transportation donkeys. In addition, camels, mules, and horses are used to transport luggage by the Cushitic people of northern and northern-eastern Kenya, while donkeys and livestock are used for farm labor.

The low functionality of livestock markets in Turkana is attributable to the inefficacy of livestock production and marketing techniques in empowering livestock farmers, livestock traders, and diverse livestock enterprises from which entrepreneurs can profit. Infrastructure, organizational, systemic, and capital-related issues with livestock production and marketing in the Kenyan county of Turkana have exacerbated competition between local and foreign traders operating in distinct market categories. Extreme competition is disrupting regional livestock trade and stakeholder relationships. The limited motivation of pastors to engage in the livestock trade creates intense competition

among traders, especially in producing regions. The prices and sales of livestock go down during this time of year, and people have less access to market data.

Due to the ineffectiveness of livestock marketing institutions in Turkana, it is difficult to manage livestock trading and competition. In response to disease outbreaks, policy restrictions on livestock transportation and trading, as well as ineffective efforts to promote livestock market access, have not been sufficient to benefit all traders. Due to their lack of bargaining power and ability to leverage business objectives during uncertain times, itinerant traders in primary markets are particularly vulnerable.

Even though competition in Turkana's livestock markets has a big effect on the pastoral economy, most of the people who took part in the study said that the most important things are market organization and access through systems that can control the performance of each livestock market component and the business activities of stakeholders.

Despite the fact that pastoralists in Turkana County own thousands of different animal species, the poverty rate in Kenya's pastoral areas has increased over the past three decades due to the effects of climate change. People think that the fact that livestock production is not seen as a business is the main cause of rising poverty and that people who depend on livestock are more likely to face food and income insecurity.

As animals or livestock products constitute a substantial portion of pastoralists' cash income, livestock marketing is a crucial component of the value chain. This illustrates the inseparable relationship between livestock production and marketing. Even though local governments, civil society organizations, and the private sector have put money into livestock markets and developing human capital, there are not enough

seasonal, competitive, and empowering livestock marketing strategies and activities that can help guide and use livestock marketing all year long.

A disorganized livestock trade system indicates that Turkana's entire livestock market system lacks a clear business plan, which is crucial for the growth and competitive positioning of the industry. Consequently, market access is a factor in the development of regional marketing. All of these factors necessitate further investigation and strategic placement of the country's livestock resources in the Eastern African market. For markets to grow in arid areas, they need a well-organized and effective system for selling livestock. This system must bring in a lot of money from both local and cross-border markets.

Research must be conducted on all aspects of livestock production and marketing in Turkana in order for the livestock sector in Turkana to remain competitive and profitable during times of risk and unpredictability. A well-organized, automated, profitable, competitive, and sustainable livestock production economy would be the result of livestock marketing strategies that reduce demand-supply imbalances, competition malpractices, reinforce rationalization of customer behavior toward the market and products, and promote corporate strategy determination.

4.3.3 Research Outcomes and Change Management in Pastoral Areas

The county livestock production office highlighted the positive impact of thematic research studies conducted by livestock development organizations in Kenya, such as the International Livestock Research Institute (ILRI), the United Nations Food and Agriculture Organization (UN FAO), the World Food Programme (UN WFP), and civil society organizations (CSOs), on the dryland livestock development agenda. As problems, the Turkana County Directorate of Livestock Production has found that

livestock marketing systems are not well organized, there are too many livestock businesses in areas with low livestock production per person, there are not good communication and information-sharing networks in the market, and there are not any good ways to find out what livestock costs.

The marketing of livestock in rural areas appears disorganized. The majority of respondents believe that capacity development is necessary for livestock traders, market arenas, public and private service providers, and policymakers to enhance knowledge, hone skills, and influence livestock stakeholders' attitudes toward better and more sustainable livestock marketing systems. Frequent disputes between livestock traders at various market levels are seen as a threat to the operation of several market categories. This problem is caused by inefficient markets and competition between traders who control their own markets and jurisdictions and ignore important parts of market growth and the long-term viability of marketing activities.

Numerous market participants mistreat livestock producers and consumers along the value chain, resulting in duplication of livestock operations. Animal slaughter, the trade of hides and skins, the trade of bones and hooves, the sale of blood for livestock feed, the sale of farmyard manure, and the trade of oils and fats are all excellent opportunities within the livestock value chain. According to the vast majority of secondary market traders, excessive concentration on one type of livestock business, specifically the sale of live animals, has decreased per capita gains for traders, particularly in regions with limited livestock supply capacity. Under these conditions, the excessive demand for livestock results in wasteful competition among traders.

According to the majority of government and non-profit livestock specialists surveyed, a lack of understanding of demand and supply market forces contributes to poor business strategy and performance among livestock traders. Also, the irrational discovery of livestock prices in multiple market categories in Turkana leads to trader cartels, livestock trade monopolies, and livestock transaction scams that take advantage of the fact that livestock producers and itinerary traders can supply multiple markets.

Aside from being essential for the performance of the livestock market in Turkana, the diversification and sustainability of livestock businesses and operations, and the effectiveness of livestock enterprise management systems, healthy business competition is advantageous for business organization and market access.

To improve the strategic management of livestock operations in Kenya's arid regions, environmental scanning and monitoring, as well as intelligence on current and potential competitors, are essential. Competition for value between rivals is a good reason to combine theory and practice in some parts of livestock development, since the structure of an industry is not set in stone and is mostly determined by what rivals do.

4.3.4 Agribusiness Development in Pastoral Areas

According to county agribusiness office survey respondents, livestock marketing systems are still expanding, particularly in Africa. It is necessary for the economic development of their states, regions, and populations to design well-informed strategies that aid in the growth of their knowledge, practices, and market gains.

Pastoralists, traders, sellers, and people who buy products could all benefit from livestock businesses if urbanization and the high demand for effective livestock marketing systems continue. However, access to livestock markets in Turkana County is still limited.

Although the primary marketplaces of established towns provide opportunities for long-term livestock sales, these markets are owned by traders, not sellers. The government says that this arrangement is ironic because it keeps livestock and traders from making the most of their potential livestock businesses by keeping them from better market opportunities.

According to the majority of participants in the primary study, the inability to recognize livestock farmers as the primary source of livestock supply dampens their enthusiasm for livestock keeping and marketing. This issue forces pastoralists to sell their animals in unfavorable markets, despite the organized nature of markets in urbanizing centers. According to the county government, livestock-based interventions in Turkana consist of rangeland rehabilitation, water development utilizing multiple technologies, destocking and restocking, annual veterinary and public health programs, and hardware and software livestock marketing interventions. Most interventions involving livestock are planned from the top down, which makes it hard for livestock producers, traders, vendors, and consumers to take part.

Pastoralists and their animals migrate too far within and across borders, limiting livestock sales opportunities during periods of high market demand. Therefore, pastoral livestock production is unconcerned with the commercial potential of livestock, which would benefit pastoralists' cash economy. According to the people who answered the survey from the directorate of livestock marketing, the transformation of livestock marketing is essential to the strengthening of strategies to change the way producers and traders think about how their livestock resources are made and sold.

The expansion of private livestock company entrepreneurs and meat value chain processing businesses is increasing market access, particularly in the established towns of Turkana County's primary and secondary marketplaces. Because there are fewer initiatives and programs aimed at the training and capacity development of pastoralists and traders operating in diverse market segments, the corporate side of livestock production is gradually gaining momentum. Most tertiary respondents said that to improve the performance of livestock business organizations, traders need to be motivated, low levels of passion need to be managed, and institutional foundations need to be strengthened.

4.3.5 Historical Impediments to the Livestock Trade in Turkana

The Turkana County Directorate of Livestock Production cited quarantine laws enacted by the colonial administration in the 1960s as an impediment to livestock migration from Kenya's drylands to tertiary markets due to perceived health risks. Similarly, severe droughts cause a catastrophic decline in the economic value of livestock because traders with limited operational capital, who rely on turnover sales and earnings, are affected by the control of small livestock holdings with less developed social networks. Drought, disease, and a lack of production resources all cause livestock body weights and conditions to go down. These are important market factors that affect how much livestock is worth on the market.

Due to the depletion of natural resources caused by the concentration of large numbers of animals in pasture and water-potential areas, animals of marketable weight are susceptible to famine, emaciation, disease, and stress. The spatial marginalization of pastoralism and the production needs of their livestock force them deeper into hazardous,

unpleasant, and lethal territory. The Turkana County Directorate of Disaster Management highlighted the increased threat of climate unpredictability, which makes agriculture and livestock production difficult during dry periods, endangering the livestock keepers' food supply and income. Furthermore, if nothing is done, the number of people and animals will increase faster than natural resources and per capita gains.

Increased resource competition between Kenyan communities and their cross-border neighbors has resulted in conflict, the inaccessibility of livestock grazing lands and markets, and consequently reduced opportunities to market livestock resources to support the Karamoja cluster region's agro-pastoral economy, despite its high livestock population.

The maintenance of pastoralists' orientation, which is exacerbated by unhealthy cultural norms and behaviors, is one of the social and programmatic issues relating to livestock marketing barriers. According to secondary livestock market management committees, a lack of institutional capacity contributes to inadequate livestock market management. Investing in marketing leads to high transaction costs, instability, fees and taxes, corruption, trader cartels, market brokers, and a lack of complete and competitive market data.

The lack of potential capital for local merchants and market segments is exacerbated by a lack of circulating cash, insufficient cash savings among merchants, and limited access to financial loans. Turkana livestock scholars found that different expert opinions on how to set up harmonized livestock marketing systems have made it harder to structure and unify livestock production and marketing goals, policies, strategies, and processes.

Due to a lack of scientifically developed and empirically validated concepts regarding livestock production and marketing, traditional knowledge and practices dominate livestock sector initiatives in Turkana. Because they don't have up-to-date information and don't share it, livestock producers and traders lose a lot of money because livestock resources don't make much money from high-potential and desirable markets.

According to the administration of Turkana, another impediment to livestock sales in pastoral areas is the low priority given to the pastoral economy by specialists and policymakers, who view it as unimportant to the nation's gross domestic product. In addition, the ongoing effort to replace pastoralism with alternative basic livelihoods in order to preserve the lives of the world's poorest and most vulnerable people is neither practical nor sustainable. Depending on the season, some of the people who took part in the research think that Turkana's unique environment for Riasing livestock is good for pastoral and agro-pastoral economies.

Academics in Turkana who study livestock emphasize the significance of topic studies in producing livestock-based outputs with a strong connection to pastoral production contexts and the sociology of livestock-keeping communities. Unfortunately, programs based on evidence-based livestock production, marketing, and a variety of ways to make a living do not use published materials that explain the pastoral context of Turkana.

4.3.6 Competition in Livestock Markets

Participants in a tertiary study identify competition as a driving force in the production and marketing of livestock products because it shapes industries, business systems, generates innovations and value additions to products and business practices, and strengthens marketing packages for the profitability and competitiveness of business enterprises. Government and civil society officials say that cross-border trade has changed from a small part of livestock production to an entrepreneurial business that helps the local economies of regions, the growth of the livestock sector, and the performance of the industry in a number of Eastern African livestock production regions.

Due to the viability of cross-border trade, livestock trading is a source of food, income, nutrition security, alleviation of poverty, and capital for business diversification and socioeconomic development. Poorly understood systems of livestock trading and stakeholder participation, as observed in pastoral and highly marginalized communities, increase market constraints, quarantine regulations, and periodic border closures, making livestock commerce more unpredictable and seasonal. The Turkana chapter of the Chamber of Commerce says that East African intra-regional trade that is not recorded makes it impossible to figure out how much livestock and livestock products traded in different market sectors are worth.

Significant increases in trade volumes, particularly in the corridors of the livestock trade between Kenya, Ethiopia, and Somalia, generate roughly \$61 million per year for states, corporate firms, and individual livestock businesses from the livestock trade. Livestock trade routes along the western border of South Sudan and Uganda generate over \$5 million annually. Due to the region's insufficient livestock production and trading

infrastructure, livestock sales are low. In addition, South Sudan, which has long been a potential livestock-producing country, is plagued by recurring hostilities, livestock disease, and regulated livestock movements. In this case, trading livestock would not do well because the risks of war and political displacement make almost all market systems inefficient and make it hard to do business.

In Eastern Africa, cross-border trade in livestock is expanding. However, a lack of services and poorly managed border ports for official export are undermining livestock producers' and traders' efforts to leverage the livestock industry to expand economies and livelihoods. Unofficial cross-border trading and the transport of animals across borders increase the competitiveness of traders, but insufficient market access procedures slow the rate at which livestock traders gain access to conventionally regulated markets. Most of the people who took part in the survey think that these commercial gaps can be closed if states invest in customs facilities, laws that regulate cross-border trade, and the creation and upkeep of financial services systems.

In accordance with the established policy procedures, infrastructure empowerment for animal health captures and facilitates a significant portion of the region's cross-border trade. In contrast, the unofficial livestock trade is viable despite the disadvantages faced by numerous livestock producers and traders. Even though barter trade is the least preferred method of conducting livestock business locally, the exchange of goods has allowed households to meet their basic needs. Even though there are no rules about cross-border trade, it brings in money for the government and helps communities and traders who depend on livestock get out of poverty.

4.3.7 Competitive Capacities of Livestock Buyers and Sellers

According to the majority of survey respondents, the purchasing power and market share ambitions of buyers and sellers increase competition and rivalry in all markets. Information and communication technology (ICT) systems process market changes rapidly, thereby enhancing the competitive advantage of certain trading companies. Due to the procurement of animal resources for future and spot markets, the climate of the livestock industry is also changing. Small-scale traders collect livestock over a long period of time before they can supply the target market, while traders with a lot of money buy livestock in large quantities.

Capital inefficiency hinders the capacity of traders to serve markets and meet consumer needs. Many respondents believe that utilizing alternative procurement arrangements to ensure a steady supply of animals and products is crucial for livestock business positioning and cost management in order to maintain trade associations with limited capital.

Due to the high risks involved, including capital access, changing market dynamics, and the unpredictability and unreliability of company break-even lines, increased competition inhibits the expansion of small trade associations into larger businesses. So, livestock business organizations think that strategic livestock business frameworks are the best way to make sure that all investors and participants make money from livestock businesses.

Likewise, the capacity of livestock sellers to adapt to new market practices is proportional to the size of their businesses. According to several Eastern Africa-based studies cited by the county government of Turkana, the capacity of local traders to

manage the risks associated with livestock trading is insufficient, making them more vulnerable to the commercial strategies of larger organizations. In addition, because larger firms engage in a wider variety of livestock trading, smaller organizations and individuals have fewer market outlets to tap into, thereby limiting their livestock-related sales and profits. High-capital traders and associations can adapt well to changes in market and non-market pressures if they use their resources and business connections. This is because traders want to make money and a living from the livestock business and are determined to do so.

Likewise, the capacity of livestock sellers to adapt to new market practices is proportional to the size of their businesses. According to several Eastern Africa-based studies cited by the county government of Turkana, the capacity of local traders to manage the risks associated with livestock trading is insufficient, making them more vulnerable to the commercial strategies of larger organizations. In addition, because larger firms engage in a wider variety of livestock trading, smaller organizations and individuals have fewer market outlets to tap into, thereby limiting their livestock-related sales and profits.

High-capital traders and associations can adapt well to changes in market and non-market pressures if they use their resources and business connections. This is because traders want to make money and a living from the livestock business and are determined to do so. "Market dynamics," according to the vast majority of secondary market livestock traders, is another type of competitive advantage enjoyed by larger businesses. Long-term contractual arrangements between livestock trading associations

and regulators protect livestock traders regardless of their resource capacity, allowing them to become risk-averse and continue operations despite adverse circumstances.

Due to the fact that livestock are living things and that any delay in marketing livestock costs the supplier, the management of livestock sale yards showed that the supplier has little bargaining power in animal agriculture and pastoralism. This puts at risk the traders' operating capital, the weight and value of livestock on the market, stakeholder morale and satisfaction, and the businesses' ability to stay in business.

Small-scale traders are affected by this circumstance because they must spend a substantial amount of money to transport their livestock to markets. According to government and civil society respondents, market access barriers caused competition in domestic and international livestock markets, which hampered production and marketing performance. On the other hand, the strength of new entrants, which comes from funding from full-line suppliers or strong ties to future customers, makes the market competitive and hurts low-cap traders.

Livestock imported through cross-border livestock corridors in Ethiopia, Uganda, and South Sudan threaten the marketability of locally produced livestock in Eastern Africa. Differentiating products based on the assurance of quality will help producers protect their livestock businesses from product substitutes. So, many people who took part in tertiary research think that the increased skills of livestock suppliers and their connections with traders in a variety of market categories will help different livestock business organizations thrive in a competitive environment throughout the season.

4.3.8 Rivalry Among Existing Livestock Marketing Competitors

According to the majority of respondents to secondary and tertiary studies, the influence of market and non-market forces on markets intensifies competition between business competitors in terms of competitive strategies, market competitive advantages, and industry analyses. Numerous local and international markets are characterized by fierce competition.

It has been observed that competing parties use their competitive and comparative advantages to make their products superior to their rivals'. The examples from the Directorate of Livestock Production in Turkana use the economics of livestock production and marketing in the United States of America (USA) to show that technological advances make it easier to run markets and marketing systems.

Due to a lack of distinctive distinctions and low commercial diversification in Kenya's dryland livestock industry, the trading of similar livestock and livestock products in markets heightens competition among traders. It is clear that people who sell livestock in the drylands of Eastern Africa are not getting the most out of their businesses, especially in catchment areas.

Traders can't get into secondary and tertiary livestock markets because they don't have enough money to run their businesses, transportation costs are too high, and they can't get to profitable livestock markets. Access restrictions to potential livestock markets severely hinder regional traders' competitiveness. Shrewd livestock sellers can get ahead in this kind of business environment by making the market more competitive in the future.

Regional markets are characterized by intense competition, which is exacerbated by business affiliations, the size of business enterprises, and the influence of opinions

regarding animals produced in different regions and countries. In livestock markets, businesses from disease-free areas face increased competition, whereas traders with livestock from quarantined areas are denied access to potential customers. So, competitive rivalry is used to grow the market and make money off of customers and consumers who are already there. This is different from competition, which is based on traders' abilities to get market shares in a free and open business environment.

For the majority of tertiary respondents, the structure of the livestock marketing system is influenced by changes in the scale of livestock production, varying economies of scale, low unit production costs, changes in marketing needs and costs, and changes in policy and marketplace organization and management. It has been discovered that supplementary and complementary goods, like other market-traded commodities, increase competitive rivalry in livestock markets. Some livestock traders have added fish and poultry sales to their businesses to increase their market share and make their businesses more diverse.

Businesses are accelerating their efforts to perfect and maintain their product pipelines due to an increase in branded product manufacturing and marketing, tighter commodity margins, and a higher risk of losing market share to potential competitors. Likewise, retailer relationships, particularly those among livestock butchers, traders, and product consumers, have a significant impact on market competition and rivalry. The stability of the supply-and-demand relationship for commodities reveals differences between enterprises and how company segments demonstrate small- and large-scale performance as well as business capacities, which are essential for consolidating the business portfolios of organizations.

They are able to pool the livestock resources of small-scale producers, preventing them from competing in more contemporary livestock markets. The operating capital of livestock-based businesses determines their profitability, which is a major advantage for large-scale traders and a factor in the consolidation of the livestock trade. On the other hand, secondary livestock traders, especially those from Lokichar and Kalemng'orok, can afford to fatten their animals before sending them to market in mechanized vehicles because they have a lot of money and a lot of livestock business organizations.

Comprehensive marketing frameworks also allow large-scale livestock farmers and low-cost producers to increase their market share when they have access to substantial capital. Small livestock merchants in Turkana continue to lose market share to multinational corporations in markets dominated by them. This may be a result of their lack of competitive and comparative advantages, as well as issues with livestock and product aggregation and market dynamics management. In the last few years, livestock markets have been quickly reorganized to combine the efficient and effective processes that are needed for competitive, profitable, and long-term livestock marketing.

In the Eastern African livestock industry, the performance of livestock marketing, livestock trade corridors, and trade monopolies demonstrates the need for a change in market development that incorporates cost-cutting technologies. The transformation establishes viable connections between internal market variables, such as demand and supply, which impact the seasonal affordability of livestock products and the performance of livestock enterprises. On the other hand, competition and competitiveness have led to unstable traders leaving the market, company mergers and acquisitions, and more

livestock sector consolidation, especially in Kenya, Ethiopia, and Somalia, where livestock are traded.

Using Turkana as an example, in one of Kenya's and Eastern Africa's largest pastoral regions, secondary livestock markets are rapidly expanding in urban areas, increasing the marketability of livestock resources and allowing markets to outpace domestic demand growth, thereby allowing livestock and products to be exported to other potential regional markets.

Due to the categorization of traders and market-offered products by quality parameters, trading the same livestock species and products, as well as limited branding, disorganizes an aggressive approach to the livestock industry. A comparison of the capabilities of livestock marketing cooperatives and small-scale livestock traders, particularly those from catchment areas, tends to polarize market transactions in their favor, resulting in unwarranted conflict between market parties.

4.3.9 Determinants of Competition and Rivalry in Livestock Markets

Depending on livestock business associations and traders' capacities, the livestock market economy in Turkana has exhibited monopoly, particularly in tertiary markets; oligopoly in secondary markets; and imperfect primary and livestock market competition within catchment regions. Local merchants who also raise livestock still use old ways of selling, like bartering, to trade animal resources for market convenience.

Since artificial insemination (AI) has never been used in the livestock production system, farmers in Turkana breed and trade indigenous livestock species. Respondents to the survey said that the demand for high-quality livestock and livestock products that

have been improved genetically is still important to the growth of the livestock and livestock product industries in the region.

The livestock production department of the Turkana County government, the Catholic Diocese of Lodwar (CDL), and the National Drought Management Authority (NDMA) have introduced phenotypes for camels, goats, and sheep to improve native breeds for the production of high-quality products with high market returns. But, as was already said, it will be a long time before the expected added value has an effect on how much animals produce and how productive they are.

Among the desired outcomes of livestock breed improvement are the competitiveness of the improved breeds, the viability of livestock trading systems, the performance of markets, and the profitability of livestock-based enterprises. Competition and market changes are also affected by how the market is governed and regulated, how civil society acts, and how consumer tastes change.

Evolving marketing strategies, trade restrictions, and rising vegetarianism enable plant-based protein sources to compete on the market with animal-based products. According to government representatives, this has no negative impact on the livestock trade, but it does increase the commercial and economic opportunities for farmers.

Complementary products to livestock-based products are eroding the market share of livestock and livestock products due to growing scientific evidence that climate change and livestock contributions to global warming make livestock keeping an environmentally risky endeavor because of greenhouse gas emissions. Tight rules that make it hard for potential livestock company groups to work together to create a competitive business environment make marketing harder and lead to market failures. If

livestock industry groups fail to comply with public health standards, they are subject to fines and taxes. In Kenya's pastoral districts, the limited availability of animals and livestock products to potential consumers poses a significant threat to price determination and seasonal livestock trade. Because of this, small traders are hurt by the rule that livestock supply channels have to cost more to ensure sustainability.

Recession and inflation have a substantial impact on market performance in Kenya's pastoral regions. In such economic conditions, livestock prices plummet, causing trading companies and individual traders to incur financial losses. Similarly, a lack of opportunities to sell animals increases competition among larger businesses while exploiting small-scale traders. Most of the people who took part in secondary and tertiary research said that an objective and economic analysis of customer demand, producer costs, and proposed regulations will be needed to make decisions that will help the livestock sector grow and have less competition among stakeholders.

4.3.10 The Impact of Competition and Rivalry on Livestock Marketing

The level of competition among livestock industry organizations in diverse markets constrains their profitability and diminishes customer satisfaction, delight, and market expansion. While the intensity of rivalry shapes the competitive structure of an industry, unfair competition occurs when business rivals steal earnings and market share in order to trade with aggressively pursuing competitors.

In numerous marketing scenarios, competition is costly. Companies adhering to the rules of regulated business competition will produce firms with a proportional share of competitive per capita revenue. When there is a lot of competition in an industry, it tends

to make it harder for existing businesses to make money, while a lack of competition means that the industry is not as competitive as it should be.

A company can strike a balance between competitiveness and profitability if the competition in the volatile economies of pastoral regions is managed. This entails corporate conduct that complies with the rules that permeate all sectors of the economy and is tailored to meet the minimum requirements. In rural areas, it's hard to keep track of the number of competitors and how they try to get a bigger share of the market.

The industry's high fixed costs contribute to the fierce competition in the livestock markets, where traders attempt to recoup production costs by selling livestock and livestock products. Low brand loyalty and low customer switching costs exacerbate competitive rivalry in secondary markets. Influential business groups become monopolistic and form oligopolistic business clusters with their rivals. This makes it harder for small livestock business groups to make money from the native and external livestock markets.

High exit barriers and the costs of expanding corporate operations, particularly in more difficult production regions such as Turkana and Kenya's drylands in general, significantly contribute to the country's and region's intense competition. In Turkana, the livestock marketing industry lacks specialized firms and organizations that trade in diverse livestock species and value chains, and livestock traders have access to a vast amount of capital. There is a greater possibility of establishing a clear market leader and achieving industry growth through coordinated livestock delivery systems in an industry with fewer companies. Product differentiation is limited in Turkana's livestock markets, and customer preferences undermine customer satisfaction.

Because they deal in premium chicken breeds for meat and eggs, traders from outside the county are charged brand loyalty and customer switching fees, especially for poultry and poultry products. In addition, the majority of responses indicate there is no excess production capacity in the animal products value chains. Due to the lack of strategic diversity among competitors, markets become disorganized due to insufficient market operating systems and the absence of clear competition management frameworks. Therefore, low competition makes an industry more attractive and boosts business revenue. High rivalry intensity, on the other hand, makes a sector less appealing to both competitors and customers, which makes it less likely to make money.

4.3.11 Influence of Market and Non-market Forces on Livestock Marketing

The livestock industry is fundamentally driven by links between supply and demand market forces created by sellers' and buyers' interactions in marketplaces, as well as the effectiveness of marketing systems. The factors influencing market outlets and demand due to purchasing power indicate that market system dysfunction is a significant barrier to livestock production, marketing, and consumption in Turkana. The delicate nature of agricultural market transitions continues to destabilize many of the county's market establishments' fragile equilibrium.

Even though markets are important for the development, transfer, and consumption of livestock-based products, the management of the food economy and the political impact on agricultural product marketing show a delicate balance that affects the performance of agricultural commodity exchanges. The focus is on how policymakers can help the livestock sector by advocating for organized agricultural marketing systems.

Given the roles of governments, civil society organizations, and corporate agricultural institutions, agricultural programs offer a once-in-a-lifetime chance to improve food security, poverty reduction, and nutrition security. But if there are no policies and rules in place for promoting farming innovations and creating value for everyone, they could wreck the social and economic fabric of the country.

The worst-case scenario for livestock market performance is when insufficient leadership and management practices and investments impede understanding of future business trends, evaluation of socioeconomic trade-offs, and market organization management through policy and practice. In most livestock markets, the demand for livestock and livestock products is also hurt by a shift toward less popular livestock and livestock products, a drop in the buying power of traders and consumers, and a big drop in the incomes of those who buy livestock, distribute livestock products, and eat livestock products.

Consumer expectations are negatively impacted by inclusive innovations and the commercialization of smallholder value chains; the need for a significant price reduction of alternative livestock products; competitive complementary goods; and future trends. On the other hand, some stakeholder perspectives depict consumer satisfaction and delight, which in the majority of cases correspond to the significance of economic returns on livestock growth trends, distribution, and market access. These points of view show how markets can lead to big market gains as well as how profitable, competitive, and long-lasting businesses based on livestock can be throughout the year.

According to government officials who were interviewed, the livestock business is based on assumptions like low organizational capacities and few policy guidelines. These assumptions lead to a wide range of wrong predictions and don't give policymakers enough information, leaving them defenseless about future supply, demand, and trade balances. Without strategic market research to facilitate investigations into the proper utilization of stakeholder perspectives for comprehensive market research, the misapplication of essential market forces in livestock marketing results in severe food shortages. Moreover, it would prevent countries, especially pastoral regions, from undergoing rapid economic and social transformations, thereby impeding socioeconomic development.

According to the opinions of the majority of tertiary participants, the economic output of markets demonstrates that poor livestock production conditions in Kenya's various drylands are caused by prolonged droughts, disease, violence, insecurity, and a weak cash economy. There are not enough animals and livestock products on the market because production conditions and marketing plans are not good enough. The performance of the livestock market, according to the vast majority of tertiary respondents, is hurt by high production input prices, unjustified price increases, high technological costs, a drop in market potential areas, high tax rates, and a lack of market regulation.

Other significant predetermined criteria that affect market performance include investments in market development processes, the urbanization of market-potential areas, environmental scanning and management, and the reduction of investment budgetary strain. A solid understanding of the market economy's structure allows for the

synchronization of interactions between supply and demand market forces. This is shown by the fact that supply, demand, and trade are affected by economic, technological, and social factors that have an effect on marketing systems and institutional procedures.

As a result of the inefficiency of markets and the deliberate exploitation of producers by trade cartels, market supply and demand interactions are unbalanced. Other than income and processes affecting demand and supply, production and marketing models, structural aspects, and policy variables are necessary for the efficiency and effectiveness of livestock marketing systems. In terms of urbanization and market growth, the supply side of the Turkana livestock market is getting better because of things like rising commodity demand, technology, agricultural investments, environmental trends, and institutional innovations.

Different rates of growth in Turkana's income, business processes, wage labor, population size and dynamics, and investments in research for livestock development inform market research and strategies that can create a balance between supply and demand for consistent product supply, price determinations, and market category competitiveness. Significant demand-altering factors, such as labor migration, technological advancements, income growth, changes in consumer market behavior, and livestock trade networks, have a substantial impact on livestock markets.

Supply shifts resulting from technological advancement, investment, and environmental pressures are critical for ensuring that markets are able to sustain consumption of the products on offer. As a result, changes in supply and demand in Turkana's livestock markets are likely to affect the consistency of production and income growth, making livestock markets a small and insignificant part of the economy.

4.3.12 The Impact of Non-Market Forces on Competition in Livestock Markets

The fact that Kenya's agricultural sector is poorly integrated with global markets means the link between production and markets is weak, making it difficult to secure a clear path for market-oriented production because there are no marketing incentives for livestock traders to compete in a variety of potential markets. So, due to that situation, farmers are split up, which makes it harder for the government to enforce its policies and other rules about farming.

Farmers are the primary shock absorbers when it comes to supply chain dynamics and market concerns such as price volatility and persistent price declines. Therefore, enhancing producer cooperation is necessary for collaborative business engagements. In the same way, trade groups and cross-branch organizations help farmers work together to increase production, get access to markets, and make it easier for them to fight for their fair share of the market.

Another factor that facilitates policy change and development is the shift from day-to-day market management to regulations that permit reliance on industry-managed instruments. In order to increase the effectiveness of competition in agricultural markets, the enforcement of transparency rules and procedures by market participants has become a crucial pillar of developing a long-term market, product, and consumer-focused strategy. Integrating data management and pricing of agricultural goods into existing market information systems makes it possible for processes that use information technology to improve the performance of livestock markets. Stakeholders would use this information to make decisions.

The efficacy of risk management instruments motivates the development of a comprehensive risk management policy for livestock enterprises. Future livestock markets are an important risk management tool during periods of high price elasticity, whereas spot markets increase the probability of market expansion and gains. By making it illegal to trade unfairly, market participants can get over their fear of doing business, which keeps them motivated to improve market performance.

Strategies such as contractual business agreements between sellers and buyers improve market performance by permitting the development of non-aggressive commercial relationships within markets, thereby facilitating the satisfaction of customer demand for innovative products and long-term sustainability. Also, written contracts make it possible for market participants to take an active role in business transactions.

The establishment of a more equitable link between producer pricing and the additional value generated in the livestock supply chain, along with the clarity of regulations governing producer collective action, strengthens market ties among livestock farmers, traders, vendors, and consumers. In this context, market investments have become a crucial strategy for facilitating access to finance through policy design, adoption, and reformation, enabling livestock keepers not connected to major markets to benefit from catchment area markets.

Climate change and governance, as well as the need for environmental protection and other activities that make rural areas useful, create economic opportunities for a wide range of livestock producers and processors. This makes it possible to produce and trade animal resources all year.

According to many respondents to tertiary studies, if the marketing strategy is included in the future agricultural policy mix, it will be possible to regulate and pay for goods delivered to markets, as well as transition between business paradigms and new technologies.

Even though healthier lifestyles and well-made foods attract and keep people in the agricultural market, policymakers and people in charge of putting policies into action must make sure that agricultural policies and regulations make it easy for people in different markets to talk to each other and connect with each other. This will improve business performance and boost stakeholder confidence.

4.3.13 Impact of Seasons on Livestock Production and Marketing

Markets are locations where transactions take place, as well as a term that encompasses numerous aspects of commodity exchange in a variety of local and international market categories. In order to make it easier to buy and sell live animals and products along the value chain, markets need to have specific places for them. This makes market transactions go as smoothly as possible.

In the past, various locations served as livestock markets where people gathered to buy and sell necessities. As a result, animals were sold as commodities in markets. Even though the success of livestock transactions depends on how prices are set and how they are traded, the people who took part in the study thought that market participants had to deal with a number of internal and external factors, including social, economic, and environmental ones.

Theories of market organization and price discovery suggest that economic market forces of supply and demand determine the prices that commodities can command. However, other, less obvious factors can impact the operation of such fundamental internal market dynamics. The way sales are done, how clients are managed, and how organized marketing systems are set up make it possible to market all year long.

This helps to deal with the main obstacles to market performance and the fact that markets work differently at different times of the year. The open-outcry pricing method is constrained by the visibility of price generation. It is an infallible method for limiting the number of livestock buyers, particularly if some of them have multiple accounts. Mergers and purchases are another way for livestock dealers and suppliers who want to grow their year-round businesses to do so.

The formation of companies or cooperatives for the purpose of selling livestock on behalf of producers or small-scale traders is a business leverage technique, especially for low-capital traders competing with larger, established trade associations. Payment methods for animals and livestock products, such as cash, bank transfers, mobile payments, and tax and fee cost management, encourage traders to continue livestock business operations. No matter how high or low livestock prices are, what matters most in the trade of livestock, especially in dry areas, is the number of animals delivered to markets based on established demand and reasonable price offers.

4.3.14 The Seasonality of Livestock Business Operations

A strong livestock marketing strategy has a season-long scope and is capable of addressing factors that hinder livestock enterprises within and outside of markets; boosting the performance of livestock markets and trader categories; enhancing

stakeholder relationships; and improving the viability of livestock-based businesses. People who want to sell livestock can make more money by coming up with good business ideas. Traders must focus on breeding and selling strategies for high-value livestock if they want to make a lot of money from markets.

To construct a system of stakeholder involvement capable of leveraging livestock business efforts at the production area, secondary, and tertiary market levels, certain market development benchmarks must be attained. If traders had these kinds of alliances, they could do business more efficiently, improve their plans for taking advantage of market opportunities, and stay competitive in the market.

Despite the fact that some livestock markets are profitable, substantial operating expenses erode revenue and capital resources. Salary and compensation for auctioneers, casual employees, market workers, administrative teams, and field sales representatives are examples of such expenditures. When it comes to how profitable livestock marketing plans are that depend a lot on livestock sales, supply and demand continue to be the most important factors that determine how well the market is doing.

The inability of businesses to generate a profit significantly contributes to the demise of many smallholder markets. In the context of livestock markets in Kenya's pastoral regions, a persistent decline in livestock numbers during the rainy season increases the expense of operating livestock-based businesses. Farmers don't sell a lot of their livestock when it is rainy or when the market is busy. This causes supply imbalances.

The main effects of increasing charges and commissions for market maintenance and operations, which is done in a number of countries to gain market leverage, are a drop in auction markets, slow growth in livestock production, the spread of disease, quarantine rules, more competition, a drop in the number of abattoirs, problems with environmental policy, technological advances, land planning resources, and the cost of compliance.

The consumption of animal resources in markets is determined by frequent changes in agricultural policy, terms, and trade modalities; the economic impact of poor market judgments; and the need for livestock and livestock product traceability. Environmental policy concerns, better technology and training, and the gradual rationalization and organization of marketing approaches, especially in secondary and tertiary markets, are all ways that regulations and stakeholder engagement can improve market performance.

In northern Uganda and other agro-pastoral regions of the world, pastoral production interventions and techniques are employed to increase livestock production in marginal areas. Governments and private-sector organizations have demonstrated effective disease control through the formulation and implementation of appropriate policies, standards, and regulations; and the promotion of genetic livestock upgrading, animal nutrition, farmer training, advisory services, and livestock research and marketing developments. The government's regulatory role, which is demonstrated by its policies and laws, helps the market economy and animal agriculture grow in a big way.

4.4 Strategies and Models Applied to the Livestock Industry Globally

Participants in tertiary studies, especially those from government departments, said that promoting precision agriculture through a variety of agricultural methods and systems is common in Canada, the United States, and a number of prosperous livestock-farming countries in Europe and Africa.

The addition of oils to ruminant diets, the improvement of production efficiency to reduce enteric methane, and the reduction of nitrogen oxides (N₂O) through reduced animal nitrogen (N) fertilizer rates are a few of the strategies and methods governments have employed to control emissions from animal agriculture. New ways to control livestock emissions include spraying nitrification inhibitors on pastures, feeding inhibitors to animals, coating fertilizer with inhibitors, and adjusting the ratio of energy to protein in the diets of ruminants.

The livestock sector contributes approximately 5.2% of Uganda's GDP and 15% of its agricultural GDP, with 95% of the national herd being comprised of indigenous breeds. In north-eastern Uganda, as in other agro-pastoral parts of the world, pastoral production interventions and strategies are used to increase livestock production in marginal areas.

Governments and private sector organizations have demonstrated effective disease control through the formulation and implementation of suitable policies, standards, and regulations; the promotion of genetic livestock upgrading; the improvement of animal nutrition; farmer training; advisory services; livestock research advancements; and value-added marketing. Through its policies and laws, the

government's regulatory role gives a big boost to animal agriculture and the growth of the market economy.

4.5 Livestock Production and Marketing Legislation and Frameworks in Kenya

Kenya has enacted a number of strategic laws and policies to protect livestock resources, improve sector performance, develop value chains and markets, and increase the livestock sector's contributions to state and community food, income, nutrition, and economic development.

The Kenya Meat Commission Act, Cap 358 of the Laws of Kenya, was established in 1950. It is responsible for the procurement, slaughter, and processing of meat products for the domestic and export markets. The Kenya Meat Commission was constrained because most of the meat produced in Kenya is consumed domestically.

The Kenya Dairy Board (KDB) was established in 1958 by an act of parliament (Cap 336 of the Laws of Kenya) in order to regulate, develop, and promote dairy farming. The framework is in charge of making sure that milk production, marketing, and supply work well. It is also in charge of quality control and assurance, market research, private sector development, and putting best practices into place. The law applies to milk products as well, making educational institutions unprofitable and untenable.

The Kenya Tsetse and Trypanosomiasis Eradication Council (KENTTEC) was set up in 2012 under the State Corporation Act and Legal Notice No. 77 to coordinate the eradication of tsetse and trypanosomiasis in Kenya and to help reclaim tsetse-affected areas for animal production, human living, and wildlife-based tourism. Because of the diseases that tsetse flies spread, livestock cannot be raised in areas with lots of grass.

The institutional structure's objective was to increase livestock productivity by preventing the spread of vector-borne diseases and other ailments caused by numerous insects and flies. Even though people are trying, trap nets, cutting down bushes, and spraying are not enough to get rid of tsetse flies in areas with a lot of them.

The Kenya Animal Genetic Resource Centre (KAGRC) was established on September 5, 2011 by legal notice No. 110 under the state corporation act for the production, preservation, dissemination, and conservation of livestock genetic resources, in addition to bull breeding. The policy would lead to a rise in production, which is an important part of livestock farming that uses precision.

The Kenya Veterinary Vaccines Production Institute (KEVEVAPI) was established by legal notice No. 220 on June 4, 1990, to coordinate veterinary vaccine production and livestock disease research. The Kenya Veterinary Surgeons and Veterinary Paraprofessionals Act, Cap. 336 of 2011, sets rules for veterinary surgeons and paraprofessionals, training institutions, veterinary laboratories, animal welfare, and breeding services.

Kenya Agricultural and Livestock Research Organization's (KALRO's) responsibilities include agricultural research and breeding. The Meat Control Act (Cap 356), the Pig Industry Act (Cap 361), the Animal Diseases Act (Cap 364), the Livestock Cleansing Act (Cap 358), and the Rabies Control Act (Cap 365) are among the most important laws that promote livestock health and production, as well as quality assurance standards for livestock and livestock products, and market protection.

The Kenya Livestock Marketing Council (KLMC), which was set up in 2000 as an umbrella group of livestock-based institutions, is used to build livestock marketing systems and help traders manage livestock marketing activities in Kenya's arid and semi-arid regions. The County Livestock Marketing Council (CLMC), which organizes and manages livestock marketing activities, represents KLMC at the county level. Established in 2002, livestock marketing associations (LMAs) carry out KLMC and CLMC mandates at the sub-county and ward levels, resulting in effective livestock marketing systems.

Kenya's rules and laws continue to make it easy to raise and sell livestock as a whole and to connect the performance of the livestock sector to production parameters. All sizes and types of businesses attempt to incorporate marketing into the creation and development of valuable products for global markets. To do this, companies often spend money on marketing mixes and tools to learn more about how to combine marketing elements like product, price, location, and promotion to create value that helps them achieve their marketing goals.

The digital era has raised the bar for industries' utilization of marketing aspects and techniques to create product value, gain market access, maintain business operations, and manage change. As a result, industries and businesses have expanded their business portfolios, widened their geographic coverage across regions and continents, engaged in innovation and value addition, and developed operating roadmaps for the new paradigms. Undoubtedly, marketing is required to reform and improve the performance of markets in response to fluctuating market demands, customer preferences, and customer satisfaction. Digitalization's expansion necessitates marketing in order to reform and enhance market performance.

Tertiary respondents also noted that access to a variety of data improves market performance and livestock marketing. Using customer profiling, artificial intelligence, and reaction analysis, businesses can develop marketing frameworks that are strategic for corporate performance and customer satisfaction. Businesses can get more data, collect more data, and be able to process more data because information is available.

Typically, in order to provide reliable, predictive one-to-one marketing, businesses collect data and information on a variety of customers and markets. In many parts of the world, fundamental marketing principles have been contested over time. Marketing has changed in a number of ways as a result of globalization and more people using the Internet.

In order to function more effectively in the current era of global interconnection and communication, many tertiary respondents asserted that marketers must reevaluate their previous marketing strategies, ideas, and priorities. Even though the Internet has changed a lot of things, marketing principles are still useful and can be used in a wide range of business situations.

4.6 Successes and Challenges of Livestock-Based Policy

In nations and regions where livestock production is essential to the economy, well-designed policies and frameworks facilitate the implementation of animal agriculture and pastoralism strategies in order to maximize food security and business opportunities. As shown by a number of livestock development frameworks, the goal of these rules is to guide investments and production rules related to livestock.

The livestock development policy establishes the necessary infrastructure for livestock production and marketing. As a result, countries have put money into laws about animal health and disease control; animal production, including breeding and nutrition; rangeland management and production system development; product value chain development and trade; research and quality assurance; and structures to empower farmers and institutions.

Policies based on livestock promote public and private sector participation and collaboration in livestock-related matters, leading to the consistent and profitable development and supply of superior livestock products for consumers. In addition to strengthening the legal framework for the marketing of livestock and the operation of market venues and infrastructure, livestock trade policies also contribute to strengthening the legal framework for the marketing of livestock. Because of this, people in the livestock industry and the government have worked together to build infrastructure for marketing livestock and find and combine business models that make livestock markets run more smoothly.

According to research, the policy has improved the leadership and administration of livestock marketing associations and strengthened relationships between pastoralists in local and terminal markets. This success also makes it easier to advocate for more access to financial and capital resources, which speeds up the work of stakeholders to stabilize the livestock sector and development processes. Even though it seems like developing and implementing livestock policies has been successful, there are still gaps that need to be filled in order to have stable and functional livestock systems that allow

livestock producers to get value for their livestock and livestock products and allow traders and vendors to get a good return on livestock capital investments.

Animal disease control, food and feed safety, animal crises, animal welfare, livestock marketing and trade protocol, and the management of climate change manifestations are among the greatest obstacles to the effectiveness of livestock policy. Low compliance with veterinary public health hygiene procedures results in market bans and restricted access to domestic and high-value foreign markets. Since Kenya was a colony, many dry lands have been quarantined, and movement has been limited. This keeps livestock and products from livestock from reaching markets in Kenya and elsewhere.

Numerous high-potential regions do not receive an equitable supply of livestock production resources due to the desire of livestock owners to treat and manage their livestock's health and productivity, agricultural diversification strategies, and livestock laws (Brown et al., 2017). Ineffective agency administration and rising corruption support ineffective marketing strategies that jeopardize trade access and capitalization on a local and global scale. Even though Kenya's rural and urban areas have a lot of livestock resources and markets, the livestock sub-expansion sector is held back by a lack of information about how to raise and sell livestock.

Livestock production and marketing systems do not work as well as they could because there are not enough people, places, and money to help them, and there is not enough knowledge to help them. Unfavorable taxation and tax regimes raise production costs, which reduce livestock's potential economic returns from markets and make it more difficult for entrepreneurs to enter the livestock industry. Alternatively, livestock breeding

and genetic improvement are essential policy areas. Animals don't produce much because they have bad genes and don't use modern breeding techniques.

Opportunities for value addition, value chain expansion, trade, and marketing that go unrealized hinder the competitiveness of livestock-based businesses in local, intercounty, and national markets. Farmers are exploited by elite trader cartels and intermediaries through intense competition in unorganized livestock markets, especially at the secondary market level. So, for livestock production and marketing to work, there needs to be a wide range and high quality of theories, policies, regulations, models, and practices that are in line with both theoretical and practical approaches to livestock sector performance.

4.7 Turkana Livestock Development Case Analysis

The analysis of livestock business situations in Turkana was essential to the research project. Business cases helped the researcher gain a concrete, contextual, and in-depth understanding of the phenomenon under study. The nature of competitive rivalry is intricate. Therefore, livestock business cases allowed for the investigation of key characteristics of markets in Turkana and comparable arid regions; the capabilities of traders; the impact of market and non-market forces; and the efficacy of strategies used to define livestock marketing in pastoral areas. The study problem, which is the effects of traders' competitive rivalry on livestock market access in pastoral areas, was better understood after nine (9) business cases based on livestock were found and looked at.

The livestock-based cases that were analyzed and included in the thesis as scenarios and knowledge segments for the understanding and comprehensive investigation of the study problem include: the Lomidat Slaughterhouse Enterprise; a possible tertiary market within Turkana; Corporate Social Responsibility; a concept for integration to improve ethics in livestock marketing activities; livestock catchment areas and trade routes that show potential areas for livestock production and corridors for livestock trade.

Other cases analyzed include: livestock trade in Turkana West showing the market and the impact of refugees on livestock products; climate change impact of livestock developments; development of efficient livestock farming systems; Turkana livestock sector performance; and strategic management of livestock business in Turkana. The business cases are presented below.

4.7.1 CASE 1: Lomidat Slaughterhouse Enterprise

Study participants from the County Departments of Livestock Production (CDLP), Trade, and Cooperatives presented on the case of the Lomidat Meat Processing Factory, which opened in 2006 in Lokichoggio, Turkana, Kenya. The business was meant to be a "world-class" place to make high-quality livestock value chains for local and international markets. Products would be made under strict guidelines for quality assurance and delivered on time to meet the growing demand for animal products on the market. The Lokichoggio area was chosen because it is close to areas where livestock are produced in large numbers in Uganda, South Sudan, and Ethiopia, and because it has a lot of livestock.

The purpose of the enterprise was to shift the economic and production goals of pastoralists from traditional to market-oriented outcomes. Under the slogan "Making life better for pastoralists," the company specialized in important parts of the livestock value chain, such as buying large numbers of livestock, slaughtering them in a safe way, inspecting them, and processing them into products that were then sold to different market segments.

The enterprise included the purchase and slaughter of healthy animals for beef, veal, lamb, and mutton offered as chilled or frozen carcasses or primal retail cuts or value-added into processed products, and the sale and/or processing of offal, including liver, lungs, and intestines, for use in the production of pet food. Also available are horns, hooves, and bones that a group of local teens and women use to make ornaments, as well as dry or green hides and skins that are used to make leather products.

Blood is preserved and dehydrated for use as fertilizer and in the production of chicken feed. Wastewater and gastrointestinal (GI) waste are used as fertilizer to enrich and fatten holding farms and crop farmlands. Biltong, which is meat that has been stripped, marinated, and dried in a sanitary way, and beef sausages are some ideas for continental hospitality services and local consumer outlets, such as hotels.

4.7.1.1 Determinants of the Lomidat Slaughterhouse Performance – PESTLE

Analysis. The foundation of the company consists of three primary products and services, i.e., (i) bulk animal purchases; (ii) sanitary slaughtering, inspection, and processing of livestock products; and (iii) distribution of processed products to specific market segments. Scanning the environment, doing scenario analysis, and analyzing the business ecosystem are now important parts of the practical analysis of macro and other uncontrollable external business conditions that affect an enterprise's profitability and competitive position so that it can get the most out of each area it focuses on.

Although business analysis techniques such as SWOT (Strengths, Weaknesses, Opportunities, and Threats) and internal and external audits are necessary, the analysis of Lomidat's business environment is necessary for defining the company's strategy and accurately determining business outcomes. This strategy would show all of the internal and external factors that affect the company's success, as well as any problems that come up as a result of its operations.

4.7.1.1.1 The Political and Economic Factors. The majority of East African countries are politically and economically unstable. Conflicts in Northern Kenya and North Eastern Uganda, as well as recurrent political unrest in South Sudan and Ethiopia's border regions with Kenya, have a negative impact on the performance (by location) of the majority of businesses in the trade corridor. Also, Lokichoggio village, where the Lomidat Slaughterhouse is, is known for cattle rustling, robbing people on the highway, and fighting over international borders (the Elemi Triangle Conflict).

The Lomidat enterprise performance obstacles continue to hinder the county's efforts to market livestock. Similarly, the high demand for jobs in Lokichoggio exerts constant pressure on the administration of the Lomidat slaughterhouse to add more job positions. This decision will delay the achievement of a return on investment (RoI) and the mobilization of sufficient corporate reserves to establish a solid capital base. If planning and forecasting are not done well, the payback period for the company could be too long.

The colonial quarantine imposed on Kenya's pastoral districts in the 1960s, which restricted livestock migration, has not been lifted, which hinders the country's hopes of entering global markets. This regulatory framework continues to be the government's most extensive economic restriction on pastoralists. Through the Lomidat project, the Kenyan government has put less money into making pastoralist communities more socially and economically stable.

Possibly because the initiative's contribution to GDP is negligible, the government's reluctance to invest in the project, including its rigid bureaucratic procedures, discourages the development of pastoralist areas. South Sudan, which is the

biggest market for livestock, has been in civil war since 2011. This is because the project cannot keep up with the expected 300 livestock for slaughter per day, of which South Sudan was supposed to be the leading supplier.

The emergence of insecurity and hostility within and across borders has hindered market functionality and access, thereby limiting livestock resources' access to potential regional markets. Corruption is a national threat that affects every aspect of Kenya's economy. Lomidat is likely to do this risky activity because of what it does for a living and because it doesn't have any rules against corruption within the company.

Due to the decline of businesses, taxation has become a significant burden. Also, when subsidies for buying livestock and moving it were taken away, especially after the donor-funded period ended, there was no relief for the company's high operational costs, which continued to use up its capital reserves, making it less likely that business areas of focus would be profitable and sustainable.

Kenya's participation in similar projects demonstrates the nation's competitive private sector. This is characterized by an absence of efforts to connect the Lomidat slaughterhouse industry to the Kenya Meat Commission (KMC) and other state agencies for business capacity development and leverage, such as the Kenya Livestock Marketing Council (KLMC). These blind spots could hurt small and medium-sized businesses (SMEs), which are a big part of the country's economy, job creation, and raising the standard of living for many people.

In 2007, when the Kenyan shilling's value began to fall, inflation was felt throughout the country, particularly in the pastoral areas, where the rising cost of goods and services made life intolerable for many. The cost of living is high because many consumer goods

are in short supply, and 88% of Turkana's population lives in poverty. The Lomidat Company's high level of insolvency poses a threat to product value chain consumption, company profitability, and the mobilization of adequate economic returns to compete with other initiatives of a similar nature. This problem is made worse by the fact that meat value chains in Kenya's Turkana region are more expensive than those in Nairobi because of price discoveries and offers.

Even though Lomidat is located in the heart of animal production catchment areas, it is both trivial and economically incorrect to assume that meat products are out of reach for the majority of consumers in a market located in the heart of a livestock production zone. Inflation increases the cost of financing for struggling local and prospective businesses. Banking and credit services have consequently become scarce, inaccessible, and prohibitively expensive.

Turkana has long been regarded as one of the poorest counties in Kenya. Both national and local governments place an emphasis on social services such as education, water, food, and health, leaving the production and business sectors open to the private sector. Consequently, the situation is pitiful and incapable of inspiring and sustaining business ventures like the Lomidat enterprise. If nothing is done to address the region's weak economy, even the most lucrative business plans will always be hampered.

A county with a low employment rate and a small number of households that can purchase goods and services has a poor cash economy. Because product prices are already relatively high, unsubstantiated price discoveries make it difficult to determine price elasticity and product break-even points, i.e., quantities and prices. Despite the fact that the world is becoming increasingly globalized and interconnected, technological

investments are costly and require a high level of understanding. So, Lomidat Company cannot afford to buy and keep the most technologically advanced equipment and services. This makes people question the company's business goals.

4.7.1.1.2 Sociocultural Factors. Demographic shifts are evident in Turkana County, where social and economic characteristics are essential for market segmentation, product differentiation, and market and customer orientation. Even though the population of Turkana County is growing, the affordability of meat products is decreasing due to changes in family size and composition, lifestyle shifts, and the availability of alternative products.

The cultural and subcultural practices of 90% of the Turkana population are gradually shifting towards the occasional consumption of meat products and the regular consumption of legumes and vegetables. In addition, the most pitiful ethical concerns known to stakeholders of the Lomidat project in the livestock catchment area and trade corridors are livestock theft, community retribution, and counter-payback activities, which are all strongly regarded as social or traditional phenomena. In the livestock supply catchment areas of Uganda's Karamoja, South Sudan's Eastern Equatorial, Ethiopia's South Omo, and Kenya's Turkana, it is not expected that resource-based conflicts will end.

The high cost of meat has a negative impact on the production and marketing of livestock in Turkana County. The absence of incentives for market capitalization, in conjunction with efforts to mobilize and engage livestock traders from various regions of Turkana to own the Lomidat enterprise initiative, is impeding local resource mobilization efforts and their sustainability. Conflict resolution and getting justice for people who have

been wronged in the business's area lower the status of areas that can send livestock to the Lomidat slaughterhouse.

The lack of working laws and frameworks for peace development is still a reason why conflicts start and keep going. Not yet has cross-cultural communication been fully utilized. This is because peace and conflict transformation partners look at and care about their counterparts in different ways. Pastoral communities on the borders of Kenya, Uganda, South Sudan, and Ethiopia benefit from government and civil society efforts to promote political and economic stability.

People, animals, and even businesses must be able to freely move within and across boundaries for pastoral communities to coexist in harmony. On the other hand, the problems that come with a pastoralist lifestyle make it harder to grow market segments and keep the forces of supply and demand going. Markets for livestock and value chains, as well as the growth of industries, depend on the presence of helpful forces that are not part of the market.

4.7.1.1.3 The Technological and Legal Factors. As in other areas of rapid urbanization, the rate of change in Turkana County is evident. These life-altering events inspire the creation and innovation of both ideas and products, allowing Lomidat Company to reorient its approach to the changing face of socioeconomic development. The availability of technical platforms, including network coverage, pervasive phone and Internet communications, and social media, would unite the thoughts and actions of all boundary partners in order to facilitate the realization of Lomidat's business model. The impact of technology would also improve how things are made, how happy employees are, and how well each business portfolio does.

The quality assurance services of the Lomidat slaughterhouse would contribute to the integrity of production outputs and the development and maintenance of consumer confidence in the safety and value of products. Over time, outsourcing products and services may become more expensive, less desirable, and unfeasible due to the scope of Lomidat Company's operations. In pastoral regions, there is a dearth of research on livestock marketing and value chain development. This will limit Lomidat's options for growth unless new research is done or old findings are updated and confirmed to reflect the company's current business prospects in the region. A business needs a knowledge management strategy and market research to solve its own problems.

The execution of Lomidat's antiquated conception of "business intent," which was formulated more than a decade ago, and its associated inefficiencies, would prevent the achievement of the required product performance. If electronic programs were available, they would be used for quality control, pricing products, and making accurate predictions about sales, profits, and customers.

The approval of numerous tax policies and legislation at the national and county levels could create a tense business environment if the rules do not apply to Lomidat's business endeavors. Similarly, Kenyan employment laws favor Kenyans, limiting opportunities to hire foreigners who can contribute to an organization's objectives. At some point, laws about selling livestock, selling products, and using them become stricter. This means that businesses could lose their registration if they don't meet the minimum requirements.

Locals, who have a right to safe consumables and hospitable environments, as well as the government's public health department, are concerned about the health risks that businesses pose to the environment; in the case of slaughterhouses, the safety of products and proper waste disposal remain issues of concern. Compliance with policy regulations would promote the law and business integrity while adhering to the fundamental principles and ethics of environmental management. Authentic and moral advertising, based on the different types of customers in different product value chains, is a way to get more customers who are loyal and likely to buy from the enterprise.

4.7.1.1.4 The Environmental and Ethical Factors. The existence of laws governing environmental use serves as a foundation for business practices. It includes provisions that would allow Kenya's economy and communities to profit from both natural and artificial resources. Lomida is required, like other businesses operating in the same environment, to align its business objectives with environmental and resource economics laws, regulations, and frameworks. Plans for infrastructure must follow strict rules about the environment, and manufacturing risks like pollution must be cut down a lot.

Environmental management watchdogs, such as the National Environment Management Authority (NEMA) and civil society organizations, along with national and county public health agencies, advocate vehemently for the use of environmentally friendly products. In order to determine the cost-effectiveness of such business plans when the social and economic repercussions of the enterprise are detrimental to the local environment and population, ecological consequences must be accurately recorded in pre-impact assessments. A company's business strategy should include recycling and waste management.

4.7.1.2 Areas to Focus on for Competitive and Comparative Advantages.

Kenya is a predominantly agricultural country. Crops and livestock products are in high demand throughout the year. This is maintained by the eating habits of the populace, which include the consumption of both animal and plant products. In addition, 80% of Kenya's geography is classified as dry or semi-arid, which influences livestock and opportunistic crop farming as primary production systems and, therefore, the economic backbone of Kenya. There are many ways to consume meat products. This is what is making livestock markets grow, including the buying and selling of live animals, the diversification of livestock product consumption, retail outlets, and product value chains, and the distribution of livestock products to domestic and regional markets.

Turkana County is a typical pastoral region, with approximately 90% of the population placing a high value on livestock rearing and product consumption, indicating the potential for livestock marketing and the long-term viability of businesses associated with livestock. But because competition is good for businesses, it is likely to cause problems in Turkana, where there is a lot of competition in the way livestock are sold.

Due to the significance of competition in market economics, the management of Lomidat Company must devise strategies to ensure a high market share through healthy competition. As a major player in the region's livestock industry, Lomidat Company is in a better position to advocate for smart trade deals and engagements that will restore sanity to the industry and get people to commit to building and maintaining livestock marketing systems once more. Due to political unrest in neighboring countries with the capacity to deliver the required quantity and quality of livestock resources, limited exports of livestock to slaughterhouses pose yet another threat to livestock industry players

attempting to meet market demands. So, "stock purchase" is a tricky part of Lomidat's business that must be carefully planned and carried out.

To ensure the timely delivery of animals, Lomidat Company must offer contracts to prospective traders. Mobilizing animals from catchment areas would reduce the chance of direct competition and conflict with many traders and their clients at livestock market yards. This would be because of the engagement with potential traders and, of course, their loyalty.

To ensure a steady supply of livestock throughout the season, the company must set aside sufficient operating funds to pay its suppliers on time. This would encourage them to remain engaged and committed to the company's profitability and competitiveness. Having adequate stock for daily slaughter and reservations at holding and fattening camps would assist the corporation in developing future steady markets and capitalizing on emerging spot markets. Consistency in animal slaughter requires a consistent supply of livestock products along the value chains that are most vital to the target consumer groups. This would increase the viability of slaughtering livestock as a significant enterprise focus.

Aspects of competition through slaughter merit consideration because they allow the company to increase seasonal sales and profits. When purchasing live animals, extreme caution should be exercised. This is achieved by selecting superior-quality animals that are healthy, non-deformed, non-mineral-deficient, and well nourished. Regulatory agencies in the country need to do more for public health to make sure that livestock products are safe for consumers.

To ensure that quality animals are sourced and slaughtered legally and that value chains are processed, stored, and distributed in accordance with established standards, Lomidat Company must appropriately equip its laboratories and employ its veterinary livestock production and agri-business officers. Lomidat is a good place to have and keep competitive and comparative advantages in the market since disloyal customers have put companies out of business because they couldn't keep their products available 24 hours a day.

In terms of large-scale businesses, a company's capacity to butcher large quantities of animals corresponds to its ability to serve a larger market and satisfy customer demands. Economies of scale make it clear that the prices of goods and services offered to a large number of customers can go down. This is a huge opportunity that should be taken advantage of.

Other competitors operate on a smaller scale, which may allow them to capitalize on the weaker segment of the product market. Nonetheless, given its market and customer orientation, Lomidat Company may be able to subsidize a portion of its products in order to increase the poor consumer group's access and affordability by allowing them to purchase products from multiple sources. This plan would create new ways to increase market share and strengthen brand loyalty among the many potential customers who would be happy with the products' quality and price.

The company has embraced and implemented its supply chain, but there are still gray areas that competitors can exploit. According to the current model, all livestock value chains are processed at the factory level and distributed to various consumption outlets. Given that competitors can choose to slaughter animals at consumption sites, thereby

offsetting their transportation costs, the likelihood that this model will be challenged remains high, making it a substantial investment for the Lomidat Company. Investing in transportation and logistics can give the company a competitive edge, especially in sales near the big cities and refugee camps in Turkana and Kakuma.

4.7.1.3 Identification of Existing and New Markets. Since its inception, the Turkana County communities of Lokichoggio, Kakuma, and Lodwar have been identified as potential markets for the Lomidat slaughterhouse. To better serve these markets, all value chains, including livestock procurement, slaughtering, and product distribution, have been redesigned. The current membership of 1,600 shareholders, of which 900 are active, contributes regularly to the company's financial needs by purchasing shares. If the goal of 10,000 members is reached, it will help to limit the needed market, which will lead to the growth and expansion of businesses and the competitiveness of value chains.

Increasing the power and confidence of potential and returning customers is a popular way to get the most out of the local market. These include, but are not limited to, training that teaches a wide range of skills and knowledge; exposure to other successful livestock markets and businesses; help for youth and women to find other ways to make a living; and business monitoring and evaluation to help decide what to do next.

Identifying boundary partners and their responsibilities and interests is crucial for the organization's profitability and competitiveness in order to build and command a substantial market share in existing markets. Turkana pastoralists (producers and itinerant traders), primary and secondary local traders, Turkana County Government (TCG) production ministries, Ministry of Agriculture and Livestock Resources

departments, and other regional and local NGOs and institutions could all work together on mapping.

Anti-cartel campaigns must be intensified in order to allow specific trading practices that adhere to the laws of a free market economy. The company's strategic plan identifies Nairobi, Nakuru, and Eldoret, among other significant cities, as targets for the supply of meat value chains to supermarkets, hotels, and various emerging spot markets as new capitalization opportunities. The Lappset initiative will encourage entrepreneurs to open hotels and other hospitality services in response to market demand. This is another untapped market segment that Lomidat Company plans to take advantage of.

The refugee camps in Kakuma, which have been established within a 50-kilometer radius and can accommodate up to 250,000 migrants, represent a potential market for the company. The United Nations' subsidy support and the Kenyan government's school nutrition programs offer the chance to meet the population's nutritional needs with a variety of meat products. Lomidat Company can also bid on contracts to deliver meat products to certain government and mission hospitals through the county government's Ministry of Health (MoH), especially to help people with chronic illnesses, HIV/AIDS, and malnutrition build up their immune systems.

4.7.1.4 Company's Research and Business Forecasting. While research and forecasting are primarily used to improve the company's deliverables through accurate investment decisions, Lomidat's management system must be equipped with key concepts, marketing analytics, and market research instruments to better serve aggregated customer categories. Marketing research should focus on understanding the most important parts of marketing products, such as production, storage, distribution, customer focus, policy compliance, and measures of long-term sustainability. This will give an organization more room to define its strategy.

Market research will assist Lomidat Company in determining the scope and size of individual market categories, such as primary, secondary, and tertiary markets, as well as customer behavior. This would help the integrated business plan of the company be more profitable and competitive in the long run. Forecasting should be emphasized throughout all phases of a company's operations process in order to accurately predict future growth and mitigate risks that may arise from the external environment. It is important for Lomidat Company to focus on judgmental forecasting to figure out how the company's own resources and those of others (experts) will affect the company's business prospects in the future.

Intentions and role-playing are both effective approaches for predicting business outcomes. With the help of extrapolation models, theory models, and database models, univariate and multivariate statistical judgments could be used to come up with an econometrics-based model of the livestock business strategy. The company would use statistical judgment to make predictions about market size, market share, sales, profitability, and other market-related things.

The mandates of the Ansoff Matrix theory must be built into the company's strategy for better service to both existing and new customers. This will help the company make money in the primary, secondary, and tertiary markets and make the most of each customer. Market penetration, where the goal is to get a bigger share of the market, and market development, where the goal is to study new geographical areas, will both help the company's products grow, which will encourage new ideas and more research.

Diversification of businesses and products aims to increase business leverage and cash inflows by expanding the invention's scope and establishing product value chains in multiple markets. The marketing mix, which can be used continuously to determine the extent to which firm products can be linked to price drivers, target existing and new customers, and develop cost-effective promotion and distribution systems, is an additional important study paradigm. Research and predictions show that relationship marketing, customer marketing, industrial marketing, and e-commerce will be added to the marketing mix as essential parts for managing the needs and touchpoints of consumers in a complete way.

Research and forecasting are mostly used to improve the company's products and services by making better investment decisions. Lomidat's management system needs to be equipped with key ideas, marketing analytics, and market research tools so that it can better serve its consolidated customer base. To expand the scope within which an organization can define its strategy, marketing research should concentrate on understanding the essential components of marketing products, such as production, storage, distribution, client orientation, policy compliance, and measures of long-term sustainability. In addition, market research will assist Lomidat Company in determining

the scope and size of individual market categories, such as primary, secondary, and tertiary markets, as well as customer behavior.

Strategy development would contribute to the cherished company's integrated plan for long-term profitability and competitiveness. Forecasting should be emphasized throughout all phases of a company's operations process in order to accurately predict future growth and mitigate risks that may arise from the external environment. Through prudent bootstrapping, it is necessary to focus on prudent forecasting in order to determine how the company's own capacity and that of others (experts) will affect future commercial prospects. Intentions and role-playing are both effective approaches for predicting business outcomes.

The company would forecast market size, market share, sales, profitability, and other market-related outcomes using statistical judgment. It is worth looking at Porter's Five Forces model to see how much a company's profitability and competitive position can be improved by taking into account aspects of competitive rivalry that are at the heart of every market, such as the effect of new market entrants, buyer and supplier power, and substitute effects.

The proposed study is important for realigning corporate strategy to account for competition from both inside and outside the company and for predicting how business will go. If the path to reducing the associated obstacles is followed, the Lomidat slaughterhouse enterprise will continue to be able to support company priorities. Also, well-done research and forecasting would keep the company from losing money and make it possible for it to stay profitable and competitive all year long.

To protect the company's performance and future prospects, these elements must be incorporated into the business strategy and implemented consistently. In addition, it is crucial to investigate how value chain theory can be applied to enhance the production, processing, and distribution of desired goods by organizations. So, with this strategy, the most important parts of the business would be incoming logistics, operations, outbound logistics, marketing and sales, and service delivery.

As a result of the integration of value chain theory characteristics and the integration of essential support activities, procurement, human resource management, technical development, and infrastructure support would become secondary activities. It is also worth looking into Porter's Five Forces model to see how much a company's profitability and competitive position can be improved by taking into account aspects of competition that are at the heart of every market, such as the impact of new market entrants, the power of buyers and suppliers, and the effects of substitutes on the company's business prospects.

The proposed study is crucial for realigning corporate strategy to account for internal and external competition and forecasting business outcomes. If the path to reducing the associated obstacles is followed, the Lomidat slaughterhouse enterprise will continue to be able to support company priorities. Utilized effectively, research and forecasting can assist the company in avoiding losses and fostering a competitive, profitable environment throughout the seasons. To protect the company's performance and chances for the future, these things need to be part of the business strategy and used consistently.

4.7.2 CASE 2: Corporate Social Responsibility (CSR) of Livestock-based Projects

Corporate Social Responsibility (CSR) was essential for inclusion in the research study as part of the technical knowledge stakeholders require to ensure morality and responsiveness to social, economic, and environmental issues when undertaking livestock interventions. Participants in tertiary studies frequently brought up CSR and its significance. This knowledge was derived from technical knowledge sources and has fewer citations.

Legal and Corporate Aspects of Livestock Businesses. Regarding the governance of livestock businesses, it is crucial to understand that societal behavior dictates the minimum legal and corporate standards. Voluntary standards, on the other hand, rely on the conforming behavior of corporate governance participants. Where do corporate, legal, and voluntary governance aspects converge? Do they overlap? Arguments within the international business community are numerous and diverse.

Milton Friedman (economist) believes that a business's sole responsibility to society is to generate profits, whereas Peter Ferdinand Drucker (management expert) believes that because a business is a part of society, it has a responsibility to adhere to social norms. Undoubtedly, the "culture" argument will be used to explain away bad business behavior, but the "culture" of an organization starts and ends with how its managers act.

Global business is now more dependent on the stakeholder principle, resulting in a broader view of responsibility. How do we handle the observed excesses? The scale and scope of "business ethics" and "corporate social responsibility" (CSR) strategies are

crucial for enhancing business success, sustainable development, and the environment. The legitimacy of all business partners is contingent upon the moral management of business portfolios and the definition of social responsibility latitude. Businesses are expected to be moral, which may help them reach the goals of CSR's economic, legal, ethical, and altruistic parts to help corporations and society as a whole.

Recognizing that legal enforcement of CSR is crucial for the timely and cost-effective management of corporations' and society's demands, businesses and society require ethical morals and inclusive partnerships to realize this premise. Corporate Social Responsibility (CSR) and business ethics and their legal enforcement are the primary determinants of the livestock industry's ability to successfully contribute to the economies of dependent populations. If traditional and common practices were made into law, all of these things would be strengthened and kept alive. The diagram below depicts the pillars that would define how CSR could foster and make livestock-based businesses productive and sustainable.



Figure 4.7.2-1: Corporate Social Responsibility (CSR) Framework (Source: Author)

4.7.2.1 Business Ethics, Contents, and Principles. Organizations, whether nonprofit, for-profit, or public, require corporate ethical (moral) governance to satisfy the needs of stakeholders, determine actual business activities worthy of investment, and make ethical business decisions. Therefore, it is proposed that corporations should not require unethical business changes based solely on the interests of their stakeholders but rather should promote morality for businesses and society. Therefore, corporations will reduce portfolio mismanagement, eliminate the incorrect labor force, and subject businesses to moral standards. So, it is recommended that business ethics teach morals and values that help a company make better business, financial, and strategic decisions, as well as decisions that promote justice, rights, and business gains for the greater good.

This viewpoint is supported by the fact that many stakeholders want to see corporations not experiment with the wrong things to the detriment of society but rather provide cost-effective and risk-free solutions for humans and the environment. Since

business ethics begins where the law ends, the gray areas between "ethics" and "law" in business relationships require proactive frameworks for extending ethics to all business partners. So, it is important for the development of good business ethics strategies for business managers to be able to make strong, profitable business plans for companies while still following the law and social norms.

Importance of Business Ethics to the Livestock Industry and Society. In the eyes of the law, corporations are "artificial persons with rights and responsibilities in society, just as individuals are subject to ethical and legal scrutiny for their actions." Through research, business ethics as a component of business administration elucidates specific rules and principles that balance the economic, social, and environmental aspects of sustainable development.

Due to their legal status, corporations are incapable of altruism. Therefore, professionally developed codes of ethics prevent wrongdoing in organizations, whereas ethical aspects embedded in moral norms, values, and beliefs assist individuals, communities, and institutions in defining right and wrong. This means that the corporate culture and organizational values of a company affect how ethically it does business.

Not all business innovations benefit society! This justifies the need for rules and principles of ethical theories that reinforce morality and the discretionary responsibilities of partners with respect to good corporate and societal trade-offs. In addition, business portfolios designed and implemented ethically will improve business and human conditions by ensuring that all stakeholder demands, business risks, and uncertainty are regulated.

The needs of society mean that corporations have to help a wider range of people, including those who don't buy or sell things. This justifies why society is crucial to corporations' strategic objectives and business programs. On the other hand, improved decision-making reduces ethical violations by enabling "boundary" partners to weigh the advantages and disadvantages of various approaches to managing business ethics. This

demonstrates the significance of accountability and common sense in business endeavors.

Conducting action mapping of corporations' entry points into business environments will aid in identifying roles, interests, and opportunities that are advantageous to the corporations' profitability and sustainability. In the globalization era of the 21st century, integration, cross-border communications, and reterritorialization have increased the global interconnectedness of corporations, groups, and individuals. In a similar way, globalization has made it less important to have common and shared borders and has helped bring about technological and political changes that are important for the health of corporations and societies.

Using the business ethics framework, the economic, legal, ethical, and altruistic/philanthropic components of CSR can be redirected (at a low cost). Given that there are many different ideas about what is ethical, including stakeholder biases, which make the problems corporations face even worse, Culture, law, and accountability systems are important parts of regulating business ethics in order to make corporations and society work better together.

Respecting workers' rights is an excellent source of motivation for improved performance and a year-round commitment to business prospects, making it impossible to overstate the significance of human resources (HR) in any business venture. Relationships between corporations and their human resources departments create motivation, which makes it less likely for businesses to lose key employees who have the knowledge, skills, and positive attitudes they need for effective production and management.

Equality in the workplace, appropriate staffing and compensation policies, discipline, and impartiality strengthen an organization's human resources, thereby boosting morale and productivity. A good business ethics plan gives personnel and beneficiaries the authority to construct, promote product consumption, and periodically review business performance in order to attract and retain employees. Henry Fayol says that bad business management practices like corruption, irresponsibility, and deceit can be reduced by making sure businesses are run in an ethical way, applying the ethics of capitalism and economic rationality, and making sure that administrative functions of management are outsourced in the right way.

Periodic examination of the role of ethics would significantly contribute to corporations' being profitable, law-abiding, ethical, and good corporate citizens (Corporate Social Responsibility CSR pyramid of components). This is the essence of ethics in corporate social responsibility (CSR), which is to limit the size and scope of stakeholder relationships while protecting the path to "sustainable development" and investments in "future commons," in this case, the environmental resources required by future generations to raise livestock.

Self-interest motives, including the maximization of sales and profits; the limitation of duty boycotts and industrial actions; the management of brand reputation; and personnel management are among the primary reasons why corporations perform better in their business portfolios. In addition, links between "competitive advantage" and "corporate social responsibility" (moral management of organizational stakeholders and actions) shape corporations' legal and moral responsibilities, guiding them to fulfill their service charters. This moral goal can be most effectively reached through better targeting,

the right use of resources, the protection of capital from constituents, and taking responsibility for the good or bad results of business actions.

4.7.2.2 Stakeholders' Empowerment and Participation in Livestock Businesses. Stakeholder theory demonstrates that corporations are not managed solely in the best interests of their stakeholders, as satisfying societal welfare requirements remains crucial, even at the expense of corporate profits. Numerous groups and individuals have legitimate stakes in the corporate decision-making process and subsequent actions. So, making CSR content a legal requirement will level the playing field so that all partners can interact with each other and society in a way that is legal.

Adherence to legal dictates of business conduct will strengthen the strategy and objectivity of business objectives for the benefit of corporations and society. Organizational diversity defines organizational behavior (OB), organizational culture, and other complexities pertinent to cherished strategic business goals. Examples of stakeholders and claimants in corporations include governments, employees, product suppliers, competitors, unions, local communities, and the general public. Diversity has either positive or negative effects on corporate-society relations.

Since the most important policy concerns regarding stakeholders' ethical conduct are based on any neglect of social, economic, and environmental aspects, the diversity of stakeholders makes it difficult, if not impossible, to identify organizational behavioral manifestations. The consistent application of the triple bottom-line concept guides CSR frameworks in the direction of an inclusive culture. Legal enforcement of CSR aspects of stakeholder roles, interests, and performance will refocus stakeholder efforts on the achievement of shared goals. Without laws, policies, and regulations, the interests and

diversity of stakeholders would probably be more important than corporations' responsibilities to society.

4.7.2.3 Strengthening Corporations' Business Agenda and Objectivity.

Corporate Social Responsibility (CSR) is linked to a state's or region's justice system; regulations have made it difficult for businesses to achieve their objectives. The size and scope of a company's inevitable incompatibility with its internal or external stakeholders will depend on how much its agenda is skewed toward self-interest or society.

Legal enforcement of corporate social responsibility (CSR) in livestock businesses is ideal for limiting misinterpretation, neglect, and mischief that can result from partiality in the planning, execution, and review of CSR objectives, goals, and strategies. These elements are illustrated in accordance with the theory of the business social contract. So, putting legal processes into CSR will strengthen the business agenda, strategies, activities, and operational modes that define the systems and competitive and comparative advantages (the ability to do a certain economic activity) of organizations based on business dynamics.

Equally, legal enforcement of CSR will encourage corporations to fulfill their fundamental responsibilities of accumulating benefits and profits for stakeholders (the primary objective), protecting their brands, privacy, and copyrights, and defending capitalism as a highly advocated economic and political system of private business control. As stipulated by the Social Contract Theory, legal enforcement of CSR will also help determine the effects of corporations, business positions, better trade-offs, and extreme corporate management. CSR will be morally effective if it helps customers with their problems; gives them jobs and career opportunities; builds markets for suppliers;

shares business profits with society; and pays taxes. It will do this by putting an emphasis on the efficiency and effectiveness of unique, unarguable products.

4.7.2.4 Business Appraisals and Legal Performance Management. Due to the fact that businesses require legal backing and authentication to comply with the law and society, governments are somewhat effective at coordinating the issuance of licenses that legitimize businesses. This goal is important for corporations to have freedom across business markets because it lets them protect their niches (their share of the market), fairness, and level playing fields.

Periodic CSR legal enforcement will regulate the behavior and impact of entrepreneurs to prevent corporations from prioritizing their self-interests over the society they promise to serve, develop, and work with. This can vindicate corporations when there is a misalignment between corporate image, brands, and the gravity of actions. If the expected morality is enforced by law, CSR components will be able to help corporations and society make trade-offs. This will lead to a fuller concept of CSR and the responsibilities of each stakeholder group in a business.

Consideration of other stakeholders whose claims are excluded from the economic and social targeting by firms' portfolios will lead to equal integration of their demands into CSR policies and a trickle-down effect from emerging business actions. With this legal support, CSR strategies will be able to meet the needs of corporations while also taking into account the more important social goal of helping all of the corporations' stakeholders.

4.7.2.5 Livestock Business Malpractices and Management Challenges. When corporations get in trouble with the law because of inconsistencies in how they run their businesses, they rush to cover up the problem by doing things like remaking their strategies, changing their operating policies, getting political support, paying fines, and bringing in chaotic claimants through shady deals and charitable actions. By law, business decisions have to be looked at in terms of how they affect society, the economy, and the environment.

According to the Pareto principle (principle of factor sparsity; unequal input and output relationships), the law should be inclusive in reducing business problems and fostering accountability and transparency, as required by corporations and society. By making sure that CSR fits into legal frameworks, corporations will take a more focused approach to solving social problems, which will lessen the impact of flaws.

The enforcement of corporate social responsibility (CSR) reduces the obstacles corporations and society face when conducting business. It also loosens restrictions on corporations by encouraging initiative and self-determination, stopping unyielding trade-offs by making corporations more good to individuals and groups, and making it easier for corporations to get business loans.

Legal enforcement of CSR creates order in the management of business layers and components by acknowledging what is right and wrong for corporations and society. Businesses and society will not suffer irreparable harm from the possible manifestation of unethical behavior. So, the legal requirements in a corporation's legal CSR strategy will cut down on bad social and economic practices like crony capitalism and making decisions without thinking things through.

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4.7.2.6 Rewarding Corporations' and Community Labour Force. The significance of labor as a production factor suggests that ethics and law are essential for fostering commitment and reorienting labor towards meaningful production and sustainable development. For business and labor processes to grow and change in a strategic way, there needs to be a set of laws that tells people how to make business labor laws and how to treat each other.

As outlined in the CSR framework, these labor regulations will ensure that stakeholders' egos, preferences, and dislikes do not jeopardize corporations' business intentions, relationships, and other gains for the greater public or society. Inequality among stakeholders must be taken into account during the formulation and execution of legal actions contained within CSR frameworks. These categories encompass both types of individuals and the size and scope of businesses.

The resultant superiority and inferiority complexes have a positive or negative impact on the perception and application of legal commands in CSR. Therefore, the legal enforcement of all aspects of CSR will create an unequal playing field for the wealthy working class (proletariat), middle class, and poor class (bourgeoisie) to benefit from one another through government tax payments, extended wage labor, and other altruistic provisions of CSR. Compliance might not be as high without laws and rules since corporations are mostly driven by business and economic goals.

4.7.2.7 Business Competition Management and Gender Integration. The legal enforcement of CSR will strengthen capitalism and other practices of the free market economy in instances of unnecessary competition and the imposition of business cartels. Therefore, all producers, distributors, and market participants have their rights protected. Considering that the majority of raw materials are extracted from the environment, CSR regulations will restrict the extent to which environmental commons are exploited and implement measures to regenerate the affected areas of the environment while addressing the associated effects in a sustainable manner. This explains why the concept of sustainable development is exclusive to businesses.

In this time in human history, there is a long and heated debate about how to include both men and women in business systems. Men's and women's roles and interests must be accurately mapped in order to determine the degree to which integration and synergistic performance of responsibilities are essential for promoting gender equality. In this labor and interests within corporations.

This criterion is essential in today's gendered world, in which unfortunate instances of gender, particularly women's segregation, and the taking for granted of their efforts and

expertise make the world and society so much more entangled. The morality of business programming and the inclusiveness of CSR elements are cost-effective in terms of getting the business agenda done and reducing the number of problems that could arise.

4.7.2.8 Legality and Duty of Corporations on Development. The primary purpose of laws, policies, and other legal frameworks is to establish order and consistency in interactions; the enforcement of the legal aspects of CSR will sustainably regulate the systems and approaches of corporations, much to society's delight. Because CSR is a moral obligation, other methods of measuring performance and impacts or effects are used in addition to legal enforcement.

Civil society is essential for holding governments and businesses accountable, so civil rights advocacy contributes to the anticipated benefits of CSR legal enforcement. This is because the law encompasses all aspects of human behavior. Therefore, CSR frameworks should always be legally enforced. Furthermore, at all costs, this includes a methodical way of coming up with a company's vision that fits with both the company's and society's goals.

4.7.3 CASE 3: Turkana Livestock Production Catchment Areas and Trade Routes

Turkana West Sub County is one of seven sub-counties that make up Turkana County in Kenya. It is located in northern Turkana and shares borders with Uganda and South Sudan to the west and north, respectively. The region has a population of 239,627 and 45,458 households (Census, 2019). The main source of income is raising livestock.

Crop farming is done on occasion in a few highly productive micro-catchment areas and floodplains. In addition to diverse businesses in towns, trading centers, the Kakuma Refugee Camp, and the Kalobeyei Integrated Settlement, the Sub County is home to multiple nationalities of refugees. In the four (4) divisions that make up Turkana West Sub County, the figure below shows what kinds of livestock are kept and how the people live.

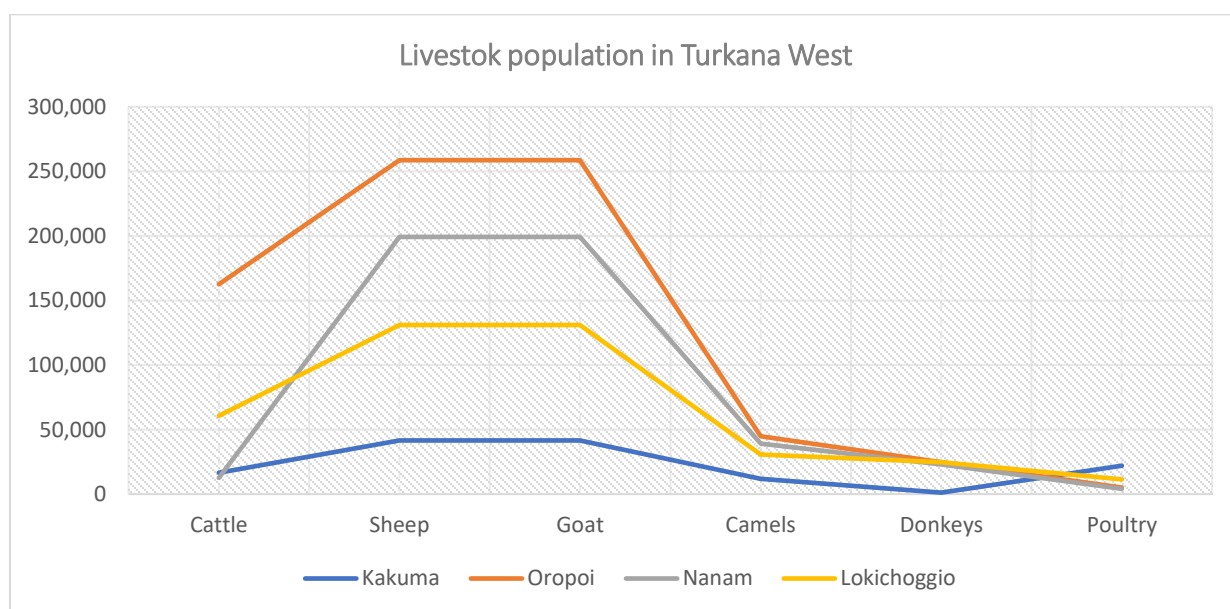


Figure 4.7.3-1: Livestock population in Turkana west (Source: CDLP, 2020)

Table 4.7.3-1: Livestock population in Turkana West divisions

Livestock species	Kakuma	Oropoi	Nanam	Lokichoggio	Total Population
Livestock	16,623	162,461	12,523	60,661	362,261
Sheep	41,565	258,606	199,210	130,997	635,378
Goat	41,565	258,606	199,210	130,997	959,195
Camels	11,921	44,829	39,048	30,640	126,438
Donkeys	1,178	24,840	22,954	24,794	73,766
Poultry	22,125	5,076	4,108	11,424	42,733 ¹

(Source: Turkana County Livestock Production Division, 2020)

Due to its proximity to year-round livestock production zones along the borders with the Kaabong and Kotido districts of Uganda's Karamoja Subregion, the Oropoi division has a large livestock population. The mutual grazing agreements brokered by the Turkana and Karamojong communities, with the support of their respective governments, facilitate access to livestock production resources across international borders. Additionally, the Oropoi division has a large population of sheep, goats, camels, and donkeys. Even though the Nanam division is mostly grassland, the lack of water has caused many animals to move to Uganda and the Lokichoggio areas that border Kaabong in Uganda and Narus in South Sudan.

¹ The updated figures of livestock population in Turkana West Sub County (TCLPD, 2020).

The high number of sheep and goats in the Nanam division is a result of the Lotikipi plains' beneficial impact on forage resources. The Kakuma division has the lowest number of livestock species kept by pastoralists but the highest poultry population, which is favored by urban residents as a source of income. The Kakuma division is located far from wet and dry season grazing areas. This makes it harder for large and small animals to live there.

It is evident in the sub-county that the livestock population and species distribution correspond with the availability of livestock production factors such as water, pasture, the abundance of catchment areas (production zones), and safety. The distribution of livestock is essential for production and trade routes. Each catchment area corresponds to a primary livestock market, where the itinerary and primary livestock traders aggregate livestock for sale at potential primary markets and at the Kakuma main market. (Watson and van Binsbergen, 2008; Pavanello, 2010). Livestock production, trade, pastoral mobility, and the food and income security of communities that depend on livestock are all affected by production technology, the environment, politics, and socioeconomics.

Low livestock productivity caused by recurrent droughts and associated hazards, inferior livestock breeds and breeding practices, poor livestock husbandry practices, pests, disease, and insecurity are the most significant challenges facing the livestock sector in Turkana County. In addition, the Draft National Livestock Policy (2019), Turkana County CIDP II (2018–2022), and the Turkana County MoAPEF Annual Reports detail uncoordinated livestock marketing initiatives, extreme market competition, and inadequate strategies for the competitiveness and profitability of livestock enterprises (2013–2019). These obstacles are slowing down the livestock trade in the country.

According to findings by USAID (2018) from the implementation of the Kenya Accelerated Value Chain Development Program-livestock component in Northern Kenya, Turkana County's livestock development challenges include inadequate funding for livestock development and emergency projects, the absence of insurance services for livestock keepers, and restricted access to credit facilities. The KISED P Document (2018), the KISED P Progress Report (2019), and the Draft Turkana County Livestock Sub Sector Policy and Bill (2018) all talk about the same problems with developing the livestock industry in Turkana County.

Several research products and reports make suggestions for how to deal with problems that affect the performance of livestock development components, such as the production, trade, and consumption of livestock value chains, and how to speed up the rate at which the money made from livestock production can be used to diversify people's ways of making a living and help the private sector grow (Berihun, 2017; Asante et al., 2018; Henike and Hölzle, 2019).

4.7.4 CASE 4: Livestock Trade in Turkana West Sub County

The goal of many pastoralist households in Turkana County is to keep livestock for both food and cultural reasons. Nonetheless, a few Turkana pastoralists have embraced livestock entrepreneurship as a result of government and non-government agency capacity building. They trade livestock as itinerant traders, primary traders, or secondary traders, depending on the type of market they work in and how much money they have to invest.

The EUTF II project for the self-reliance of refugees and host community populations is designed to provide assistance to households and groups dependent on livestock keeping and trade in order to improve their self-reliance and capacity to meet their long-term socioeconomic needs. The livestock sector's contribution to the self-sufficiency of the project's target communities and households would be bolstered by enhancing the households' to maximize livestock production and business opportunities within and beyond the domains of the target populations. The following table displays the mapped livestock production catchment areas, markets, and trade routes in Turkana West Sub County.

Table 4.7.4-1 Livestock Production Catchement Areas and Trade Routes

Ward	Market places	Market type	Catchments areas and Livestock production zones	Market days	Trader category
Nanam	Nanam centre	Primary	Mogila, Lopiding, Lotikippi	Regular	Itinerary and Primary traders
Lokichoggio	Lokichoggio town	Primary	Mogila, Solia, Songot, Lomidat	Regular	Itinerary and Primary traders
Songot	Naposta trading centre	Primary	Naposta, Naremeto, Nakururum, Loteteleit	Regular	Itinerary and Primary traders
Kalobeyei	Kalobeyei trading centre	Primary	Lonyuduk, Natiira, Lomunyaena,	Regular	Itinerary, and Primary traders
Lopur	Lopur village	Primary	Lokangae, Lopur, Narong'or	Regular	Itinerary, and Primary traders
Nakalale	Lokore	Primary	Pelekech, Kaeris, Morung'ibuin, Lokore, Kaliao	Regular	Itinerary, and Primary traders
Letea	Letea village	Primary	Lokipoto, Letea, Loritit, Loreng, Nakitongo	Regular	Itinerary, and Primary traders
Kakuma	Kakuma town	Secondary	Nakalale, Lokangae, Gold, Lokore, Lopur, Pelekech, Letea, Kalobeyei, Narong'or	Regular market day introduced by TCG	Itinerary traders/Primary traders

The secondary market in Kakuma is located at the center of the catchment areas, while the primary markets and vendors are evenly distributed throughout the entire sub-county. Each catchment area is strategically linked to primary markets, and the Kakuma primary market is effectively connected to trade routes. This shows that moving livestock from catchment areas to primary markets and the Kakuma market can be helpful if a systematic livestock marketing system is made and used. Because there are livestock traders in all parts of the market, it will be possible to set up a system that helps livestock producers in catchment areas, on itineraries, and as primary and secondary traders as they trade livestock throughout the season.

4.7.4.1 Overview of Livestock Trade Systems in Turkana. Initiated by well-known traders such as Turkana businesspeople, nomadic Somali traders, and cross-border traders from Uganda, South Sudan, and Ethiopia, barter and cash-based livestock trade have existed in the sub-country for a considerable amount of time. Primarily, trading occurred in the catchment areas and trading hubs adjacent to the livestock production zones.

The trading model relied solely on traditional knowledge and practices and was incapable of incorporating livestock commercialization on a significant scale. It was shown that livestock trading in Turkana County needs to be improved by looking at how other pastoral regions in Kenya, like Marsabit, the North Eastern Counties, the Maasai, and Samburu, raise and sell livestock successfully.

In 1997, ARLMP II (a project to accelerate development in Kenya's Arid Lands) funding in Turkana West Sub County led to the establishment of a modern and formal livestock market facility in Kakuma town. In 2004, the UNDP sponsored Turkana livestock

traders and Kakuma LMA representatives to attend the launch of the Kenya Meat Commission (KMC) in Nairobi. Because they worked with KMC, the traders learned how important organized livestock market systems and links are, as well as how livestock resources are traded up to terminal market levels.



Figure 4.7.4-2: High livestock numbers awaiting sales in Kakuma market (Source: Author)

Together with Terra Nuova, the African Medical Research Foundation (AMREF) constructed three office buildings and renovated the Kakuma market yard fence in 2005. In 2006, the same organizations helped pay for the building of the Lomidat Slaughterhouse in Lokichoggio. This was part of an effort called Corporate Social Responsibility (CSR) that was meant to improve the economic situation of Turkana pastoralists.

From 2003 to 2008, VSF Belgium, as part of the livestock marketing component of the Turkana Livestock Development Programme (TLDP II), provided traders with training and exposure to potential markets in Kenya and Uganda. This was accomplished with the assistance of the National Ministry of Agriculture and Livestock and the Turkana County Council. In 2011, with funding from the United States African Development Foundation (USADF), the Turkana Pastoralists Development Organization (TUPADO) invested in trader capacity development through training, constructed goat market shades and a conference hall, and furnished Kakuma market offices. TUPADO also gave traders revolving loans so that those who didn't have a lot of working capital could increase their stock, sales, and ability to compete.

In 2009, the International Organization for Migration (IOM) constructed camel shelters and supplied the Kakuma LMA with veterinary kits (curative and preventative animal medications and equipment). In 2010, the Lutheran World Federation (LWF) taught a few livestock dealers (community disease reporters, or CDRs) how to report diseases in their communities. A grant of KES 80,000 was added to the loan package for merchants. Also, the livestock, veterinary, and rangeland management departments of the Ministry of Agriculture and Livestock in Turkana taught traders in the primary markets in the sub-county how to raise healthy livestock and organize marketing activities.

Permanent and temporary livestock market yards were established in Letea, Kalobeyei, Lopur, Lokangae, and Lokichoggio between 2006 and 2010 with the assistance of government and non-governmental organizations. The County Livestock Marketing Council (CLMC) advocated for the establishment of the Kakuma livestock market and supported the primary livestock markets in the subcounty. Lobbying and

working with donors led to the building of a new and modern livestock market in the town of Kakuma, which is on the main road between Kakuma and Lokichoggio.

The construction of the market facility was funded by the United Nations Development Programme (UNDP) and carried out by LMS. The new market was introduced and made operational on October 17, 2018. In January 2019, the German Corporation for International Cooperation (GIZ) assisted the Kakuma Livestock Marketing Association (LMA) in developing a marketing business plan framework intended to empower traders, improve stakeholder engagement and communications, and sustain livestock business operations.

Beginning in 2017, the FAO, with funding from the European Union (EU) for the KISED P, has made substantial investments in the capacity development of livestock producers and traders in over 20 locations in Turkana West Sub County. FAO focuses on livestock production, marketing, making sure that livestock products are safe for consumers, and speeding up livestock businesses to make sure that households can make money.

In close partnership with the Turkana County Government (TCG–MoAPEF), FAO contributes to the development of the livestock sector in the sub-county. With money from the European Union (EU) for the KISED P-Agriculture, Livestock, and Natural Resources Management (NRM) component, FAO, in partnership with the Turkana County Directorate of Livestock Production, works with pastoralists in seven wards of the Sub County who are enrolled in community-based and government-led extension systems to help them improve their livestock production practices and learn more.

The primary impacts of the KISED P model on livestock keepers and traders were an increase in livestock supply to their respective primary markets and an improvement in livestock aggregation and supply to the Kakuma secondary market, resulting in a 20% increase in livestock sales and a 37% increase in revenue compared to previous years (KISED P Progress Report, 2019). The World Food Programme (WFP) is currently looking into livestock value chains to increase livestock productivity and value chain development through market capitalization.

Kenya's National Agricultural and Rural Inclusive Growth Project (NARIGP) aims to transform the value chain study outputs into business models that livestock-based stakeholders can use to strengthen livestock and livestock products businesses. The goal of the Kenya Development Response to Displacement Impacts Project (KDRDIP) is to test livestock value chain models that could be used by communities and entrepreneurs who depend on livestock.

Under the guidance of the Turkana County Government-MoAPEF, the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the United Nations High Commissioner for Refugees (UNHCR-Livelihoods Unit), Lutheran World Federation (LWF), the Danish Refugee Council (DRC), the Japanese International Corporation Agency (JICA), and the Lotus Kenya Development Organization (LOKADO) are working together to improve the lives of refugees in Turkana County, Kenya. Africa Action Help International (AAH-I) and Danish Church Aid (DCA) are actively involved in the formulation and implementation of strategies to maximize the benefits of livestock

keeping. This is done through the overall coordination of stakeholder engagements by the Turkana West Sub County Administration Office.

4.7.4.2 Livestock trading in Kakuma Secondary Market-Situation Analysis.

Kakuma Livestock Marketing Association (LMA) is a social services and livestock business organization that was established and registered in 1997 with the goal of introducing and promoting organized livestock marketing in Turkana West Sub County. The purpose of the organization was to transform traditional livestock production economies and practices into market-driven goals and actions. There are approximately 250 members in the association, of which 60 (or 24%) are women. Approximately 70, or 28.6% of the total membership, are active members with regular trading activities and monthly share payments.

Despite the introduction of a market day system by the Directorate of Livestock Production of the Turkana County Ministry of Agriculture, Pastoral Economy, and Fisheries (MoAPEF), livestock trading occurs daily. The average opening stock for goats (supply) traded daily is approximately 300, with 200 in stock (67%) and 100 arriving daily (33%). The average daily sale of goats to butchers, hotels, and households is approximately 70%, or 23%, of the daily stock.



Figure 4.7.4-2: Functional goat market of Kakuma (Source: Author)

On a daily basis, approximately 80 livestock and 40 camels are available for sale, with 8% and 15%, respectively, being purchased for slaughter. Approximately 100 camels can be purchased at once during Islamic religious celebrations, when camel sales are at their peak. At the Kakuma livestock market, four (4) goat grades are traded. Grade 1 costs KES 7,500. Grade 2 costs KES 6,500. Grade 3 costs KES 5,000. And Grade 4 costs KES 3,000. Using the average price for grades 2 and 3 ($\text{Grade 2} + \text{Grade 3}/2$), the daily average price for goats at the Kakuma livestock market is KES 5,750.

Due to the fact that 76% of goats supplied to the market are not purchased, approximately 1,322,500 Kenyan shillings worth of working capital are idle among traders. The active portion of daily operating capital traded is approximately KES 402,500, or 23% of the market capitalization. Using the average markups for Grades 2 and 3, i.e., KES 750 and KES 1000, the markup lost per animal if daily turnover was 100% is KES 875.

Due to their inability to sell 77% of the daily supply, traders in livestock miss out on a gross profit of KES 201,250. Traders earn a gross profit of approximately KES 87,500 (23%).

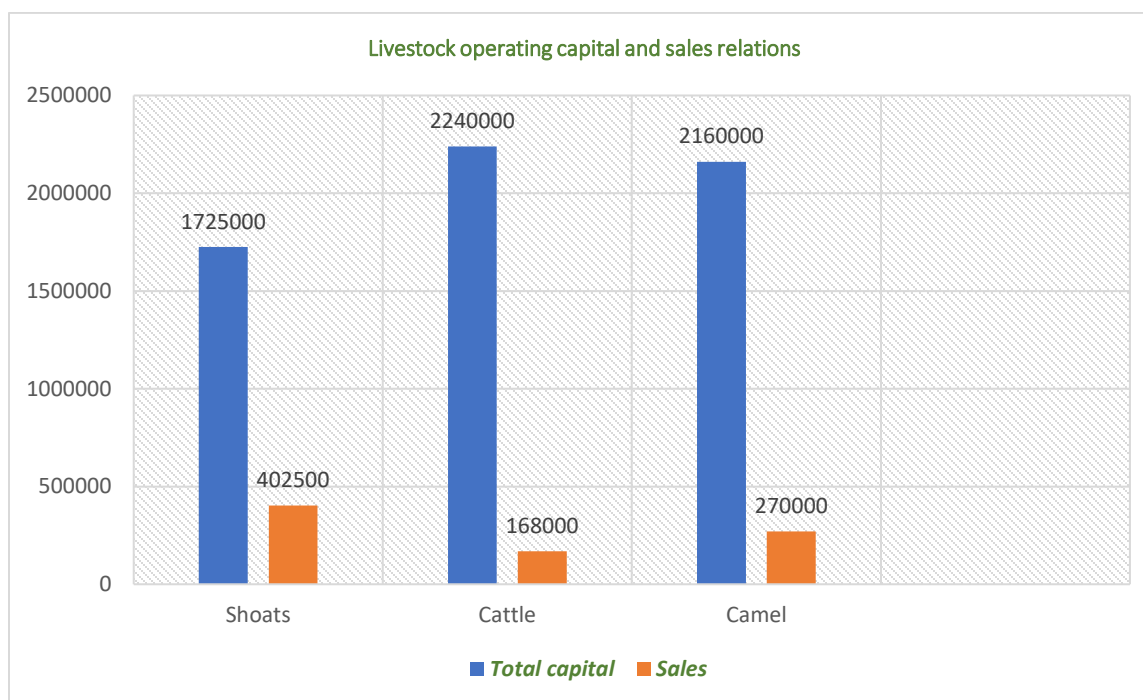


Figure 4.7.4-2: Kakuma market livestock sales and traders capital (primary data)

At the Kakuma livestock market, three (3) grades of camels were traded, with grade 1 selling for KES 60,000, grade 2 for KES 45,000, and grade 3 for KES 25,000. Concerning the KES 2,160,000 used to purchase camels, the daily purchase of six camels for slaughter indicates that approximately KES 270,000 (or 13%) of the total capital investment is operational daily. In addition, the average markup per camel is KES 7,000. This indicates that merchants cannot recoup their gross profit of KES 294,000 (87%).

The preceding graph illustrates a significant disparity between livestock supply and demand on the Kakuma market. The (possibly) unjustified imposition of high prices is primarily responsible for the irony in the relationship between supply and demand market forces. Contrary to the laws of supply and demand, pricing systems need to be changed to deal with the fact that there are a lot of livestock and a lot of idle capital on the Kakuma livestock market.



Figure 4.7.4-3: High number of camels awaiting sales in Kakuma market (Source: Author)

Daily, approximately 72 cows (92%) remain unsold. Using the Grade 2 average selling price of KES 28,000, only KES 168,000 is traded. The value of the 72 unpurchased cows is KES 2,016,000, which indicates that 90% of traders' capital invested in the livestock trade can be held in livestock. The daily markups are approximately KES 24,000,

while the markup on unsold livestock stock is inaccessible at KES 288,000. Therefore, the above figure illustrates the disparity between livestock sales and profits earned.

While the lack of livestock offtake by tertiary traders hinders livestock marketing in Turkana West Sub County, the revenue collected is low, thereby limiting market cash flows and preventing the market enterprise from meeting operating expenses. In the livestock supply chain, producers sell approximately 95% of their stock to primary and secondary traders in primary markets (proportional piling results). Due to low sales on the secondary market, merchants cannot make as much money as they could. This puts their capital investments and motivation to grow their businesses and make a living through livestock-based projects at risk.

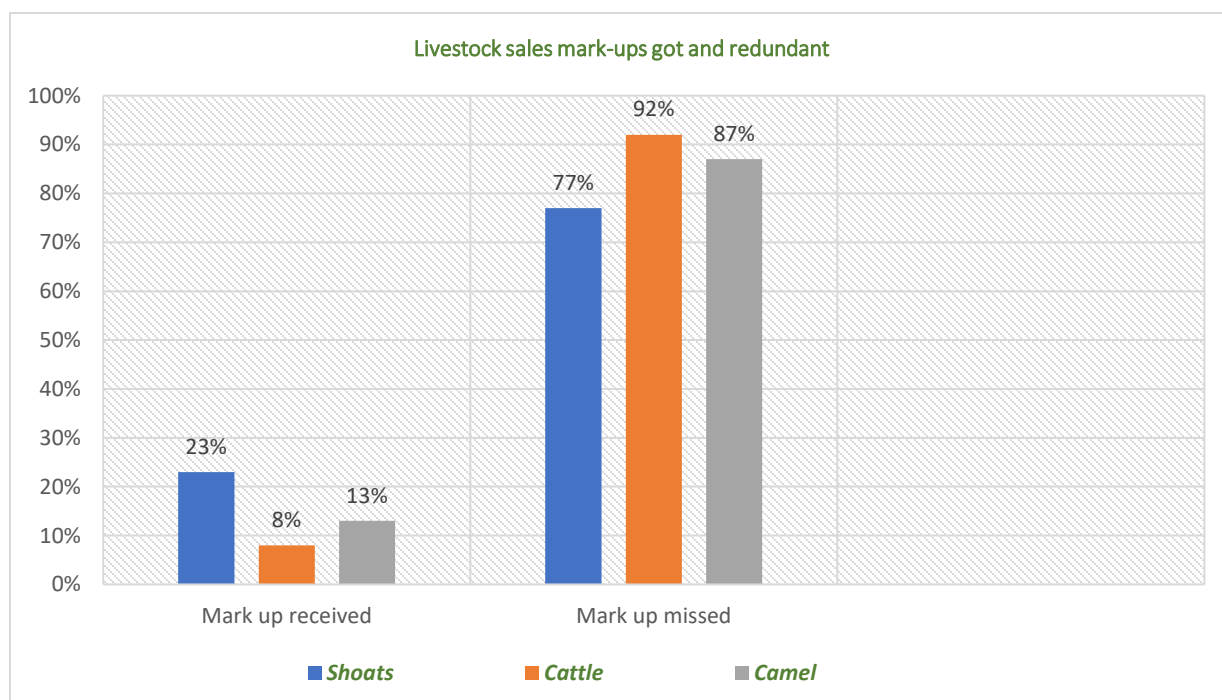


Figure 4.7.4-4: Livestock sales marqueups received in Kakuma market (Primary data)

4.7.4.3 Livestock Slaughters and Value Chains in Kakuma Market. The National Drought Management Authority (NDMA), in collaboration with Turkana County MoAPEF, Kakuma LMA, and USAID's Feed the Future Project's Livestock Marketing Systems (LMS), supported the construction of the Kakuma Livestock Market slaughterhouse from 2012 to 2015. The facility was inaugurated and put into operation on October 17, 2018. At present, only two (2) livestock product value chains are marketed, namely red meat and offal/organ meats. The product value chains for hides and skins, horns, hooves, bones, blood, and manure are not utilized. The Kakuma LMA considers the slaughterhouse to be non-standard. Livestock and camels are slaughtered and skinned outside the premises of the slaughterhouse (in the open). This is why the LMA used money from the market to build a slab for killing, skinning, and inspecting large carcasses. The facility lacks a roof, is of a small size, and, during wet and windy seasons, it poses a threat to workers and meat products. Additionally, only one (1) waste lagoon was built. Two additional containers are required for the proper disposal of slaughterhouse waste. Some workers bring their own tables while others perform the separation and cleaning of offal on the floor, as there are no available work tables. There is no shade and no isolation units for veterinary inspection. These units are essential for ensuring proper animal hygiene and market safety procedures.

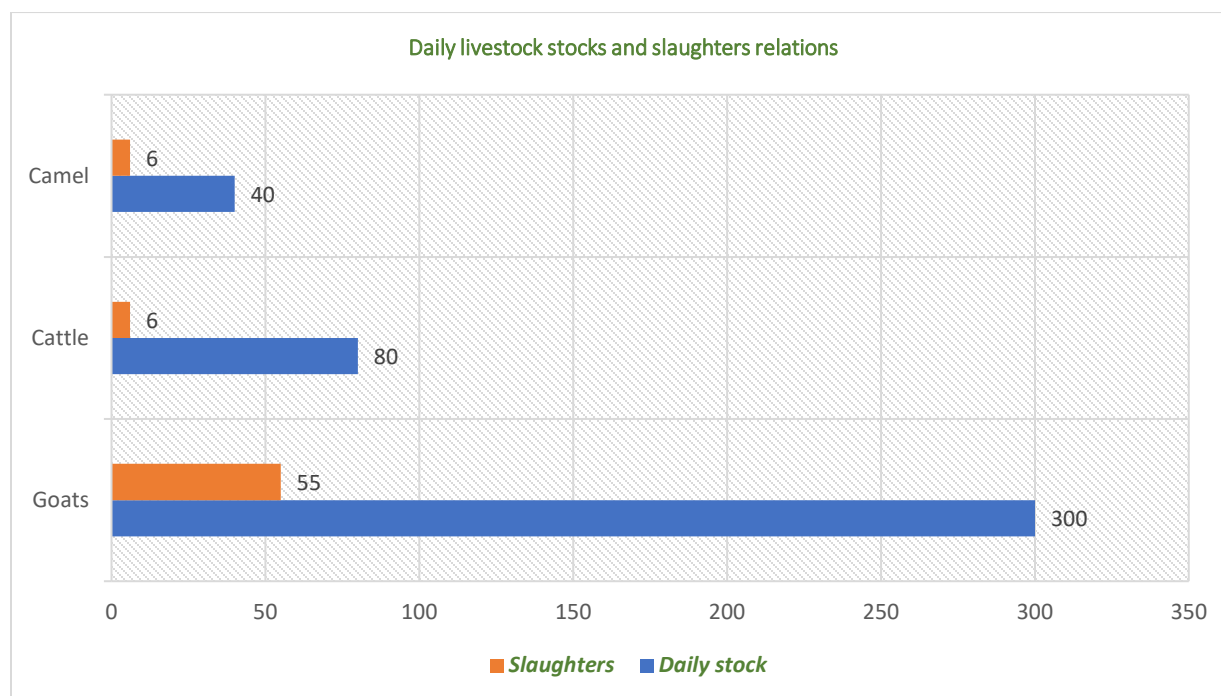


Figure 4.7.4-5: Livestock aggregation and slaughters relations (primary data)

The preceding number demonstrates a significant disparity between the livestock supply on the Kakuma market and the number of animals slaughtered. In the Kakuma livestock market, pricing inefficiencies restrain the achievement of total market demand, which explains the extremely significant difference. Given the current livestock supply on the market, the local market demand cannot be used to maximize the product value chain's consumption. Market research is needed to figure out how much the meat value chains produced in Kakuma can be used.

This is likely to increase the number of animals slaughtered, the number of households and institutions with access to livestock and livestock value chains, and the number of producers and traders who recognize the value of their investments in livestock production and trade. The slaughterhouse and the entire market yard lack electrical service. The situation affects operations dependent on lighting and energy consumption.

Animal slaughtering begins at 0500 hours, utilizing flashlights. Standard slaughterhouses are equipped with rails, sufficient hanging hooks, and stunning machines. Animals are slaughtered without stunning.

No resting shades have been constructed in the market compound for vendors and customers, and slaughterhouse workers lack hygiene and protective equipment. Within the slaughterhouse's vicinity, service delivery must be enhanced. This includes public health, waste disposal, infrastructure improvement, capacity development for slaughterhouse workers, and the efficiency of slaughtering and transportation along the meat value chain. These things are very important for making sure that livestock products are competitive and can be sold in both domestic and international markets.

4.7.4.4 Hides and Skins Production and Trade. Members of the Kakuma market committee responsible for the slaughterhouse gathered hides and skins. Each month, 1,600 pieces of goatskin are sold. When the market was healthy and thriving, a piece of skin was purchased from the producers for KES 200 and sold to the dealers for KES 280. The majority of the skins are salted, an additional expense incurred by traders at a cost of KES 1,200 per bag of salt. In 2017, skins were purchased from producers for KES 30 and sold to dealers for KES 70, a decrease of 85% and 75%, respectively, from the previous year's prices. There are currently no sales. The current skins are simply discarded after flaking.

The market for livestock and camel hides ended in 2014, where traders had previously purchased approximately 300 hides per month, 150 for cows and 150 for camels. The producer price for cowhides was KES 600, while the price for camels was KES 300. Each was sold to suppliers of turneries for an average price of KES 1,000 and

KES 600, respectively. There is currently no market for both products. They are discarded in the market yard for birds, termites, decomposition, or combustion.

Given the current state of hides and skins in the Kakuma market yard, market surveys are needed to rediscover hides and skins business opportunities in the country, ways to add value to hides and skins, and new ways to use hides and skins as raw materials to make valuable goods like cultural artifacts and a wide range of traditional leather goods for different markets.



Figure 4.7.4-6: Disposal of unsold hides and skins in Kakuma market

4.7.4.5 Market Stalls and Alternative Livelihoods. The least profitable enterprise of the Kakuma livestock market has been the rental of market stalls within the market facility. As the town and villages of Kakuma grew and as work on putting up electricity poles in the market continued, people moved into empty stalls and started their own businesses.

The greatest obstacles have been a lack of electricity for lighting and the fact that livestock traders are the only consumers of goods sold in the stalls. The entrepreneurs, who are mostly women who sell livestock, would be able to grow and care for their businesses and put the money back into the livestock trade and other demand-driven business opportunities inside and outside of the Kakuma livestock market if their needs were assessed, they were targeted, and they were given the skills they needed.



Figure 4.7.4-7: Market stalls in Kakuma livestock markets (enterprise diversification)

4.7.4.6 Livestock Trade in Kalobeyei Integrated Refugee Settlement. The Natukobenyo Livestock Marketing Association (LMA) in the Kalobeyei settlement (registered) consists of 56 livestock traders from the host community and 15 butchers, the majority of whom are refugees whose numbers are expected to increase. The structure of the market consists of traders from the host community selling animals to refugees, who then slaughter them in Kakuma and Kalobeyei center slaughterhouses.

The daily livestock trade association is managed by an executive committee comprised of both resident and immigrant traders. As a new association, numerous market organization structures must be implemented. A review of market participants and markets is needed to figure out what needs to be done to change how markets work and make them more competitive.



Figure 4.7.4-8: Open yard livestock market in Kalobeyei refugee settlement

The lack of a physical livestock market yard and (ii) the need for a simple slaughter slab for butchers to slaughter their animals rather than incurring costs and time slaughtering animals in Kakuma and Kalobeyei center slaughterhouses are two major concerns of traders in the Kalobeyei settlement. In the Kalobeyei settlement, the host community, refugee traders, and people who eat meat have all been asking for more slaughter slabs.

Butchers in the Kalobeyei settlement claim daily losses in the meat industry's net profits are substantial. TCG, FAO, DRS, WFP, UNHCR, and other KISEDPA agriculture, livestock, and natural resource management taskforce partners must help the Kalobeyei settlement grow its livestock trade and product value chains.

4.7.5 CASE 5: Turkana Livestock Trade Prospects

The Turkana people are primarily engaged in livestock husbandry for subsistence and cultural reasons. Large numbers of livestock are also indicative of a household's social standing within the community. This indicates that domestication and familiarity are integral components of livestockkeeping. The majority of pastoralists do not intend to sell livestock through formal marketing channels. Such beliefs and practices continue to impede the economic growth of pastoral regions and communities that keep livestock. Cultural dominance and the inability of governments and civil society groups to break through pastoralists' main goals and practices for keeping livestock is a constant criticism of their unwillingness to speed up change by changing their knowledge, skills, and attitudes, as well as understanding the role of markets in the economy and the innovation of pastoralists.

Agencies working with Turkana pastoralists emphasize that the pastoralist way of life is intricately interwoven with culture and traditional beliefs. Culture and the fact that pastoralists use it to make decisions regarding livestock keeping, utilization, and management are primarily responsible. However, the rate of cultural change is slow. It calls for more pastoralists to be fully integrated into national and regional economic developments and to participate in livestock production and marketing through an improved ability to use livestock and environmental economies to build a solid foundation for development.

Several studies have said that the fact that pastoral communities still use traditional practices and beliefs to take care of their livestock is due to a lack of exposure, marginalization, and not enough resources for development. The constitution of Kenya

established counties and a system of devolved governance in which counties receive resources based on their needs. Consequently, Turkana County receives approximately 12 billion KES per year from the national treasury.

Due to corruption and misplaced development priorities, the needs and priorities of many pastoralists have not been met. Economically, it would make sense for pastoralists to sell their livestock before a predicted drought, when they would fetch a higher price for reasonably healthy animals, but this is not the case in practice. Also, pastoralists don't have enough access to infrastructure for selling livestock, and livestock production and trade policies need to be changed to support the change that is wanted.

4.7.5.1 Marketing, Trading, and Consumption of Livestock Value Chains. In Turkana County, the difficulties associated with the purchase and consumption of livestock products are growing. Despite the fact that Turkana is a livestock production zone with numerous livestock markets dispersed throughout the country, slaughterhouses, and emerging trading centers with livestock product consumption points such as hotels, bars, and quick-service restaurants, meat prices are soaring. Over the past two decades, Lodwar town has slaughtered up to 400 goats per day, along with camels and livestock on occasion.

Together with other towns, approximately 800 goats per day are slaughtered for commercial consumption in Turkana County. During religious, traditional, and sporting celebrations, the daily number of goats slaughtered in Turkana reaches approximately one thousand. Pastoralists' use of better livestock production and marketing systems is expected to speed up current market demand, which will increase economic returns from

livestock-based businesses, create new ways to make a living, and make local traders more competitive in their domestic and international markets.

This has been the strategic objective and justification of numerous actors who have promoted the livestock trade in Turkana County. External traders dominate the export of livestock. This is due to the country's underdeveloped livestock production and marketing capabilities. Local merchants don't have enough money; most of them can't read or write; and they don't know about livestock markets in other countries.

The lack of traders' domestic market dominance prevents them from securing a substantial market share in foreign markets. Potential livestock markets in Nairobi, Mombasa, Eldoret, and Kisumu are therefore heavily capitalized by wealthy Kikuyu, Somali, and Kenyan coastal livestock traders. The same traders buy and sell most of the livestock in Turkana. This makes it hard for local traders to make money in their own markets. Because livestock kept by pastoralists is believed to be a store of wealth, livestock owners will maximize their profits from high-income years during periods of high livestock demand. Although pastoralists do sell livestock, they do so primarily to meet immediate needs, such as purchasing food, clothing, school fees, and medical bills with the proceeds from the sale of a few animals.

4.7.5.2 Seasonal Livestock Sales and Offtakes. Pastoralists in Turkana sell their animals seasonally during the dry season when prices are low. In accordance with market forces (demand and supply), livestock fetches high prices in markets during the wet seasons (breeding and herd expansion season) due to low supply and high demand for high-quality meat, milk, and hides and skins. In contrast, more animals are brought to market during dry seasons, when their poor body conditions result in lower prices.

In a well-organized livestock marketing system, the greatest opportunity for livestock traders from Turkana County to realize economic returns from markets is to sell their animals during the wet season and limit the supply of livestock to markets during the dry season in order to maintain higher demand and prices. Even though there are already markets, only a small number of pastoralists sell their animals there. Because of how popular they are, some livestock species are rarely sold or slaughtered except for ceremonial purposes.

Several studies have demonstrated that the correlation between herd size and livestock marketing is the strongest, implying that preserving or restoring the viability of large herds is the most important factor in expanding livestock marketing. This finding validates the capacity of pastoralists in Turkana County to effectively meet and sustain market demands for livestock. Even though barter trading is an old trading system, it is still practiced in Turkana.

Somali traders stock their shops with the goods needed by pastoralists, and after agreeing on livestock prices, pastoralists are permitted to shop for goods instead of taking cash. Pastoralists don't know how much their animals are worth because they don't have

enough information. This makes them easy targets for low and unfair exchange systems and rates.

4.7.5.3 Trader Cartels in Livestock Markets and Associated Activities. Trader cartels are also to blame for limiting livestock producers' access to livestock markets and preventing them from reaching distant, higher-priced markets. In this scenario, all livestock producers sell their animals locally. Established livestock marketing platforms, such as the County Livestock Marketing Council (CLMC) and Livestock Marketing Associations (LMA), coordinate livestock trade activities with traders from catchment areas (itinerant traders), who often do business with traders from primary markets.

Animals are transported by primary traders to secondary markets, where they are traded with secondary market traders. *Eporoto a' Akwara*, which translates to "cartel," is a strategy used by traders to control livestock market prices. When stock owners wish to increase prices, traders unanimously agree on a price ceiling (range) to buy and sell, allowing them to profit from all livestock transactions. This has been going on for a long time, and it is a threat and a way to scare people. It stops pastoralists from making progress in the livestock trade and in making a living from livestock.

4.7.5.4 Livestock Marketing Modes in Turkana County. According to Watson and van Binsbergen (2008), the marketing of livestock in Turkana County primarily involves four methods. First, mobile or itinerant traders who venture into the interior barter with pastoralists for small quantities of livestock and trek their livestock to either primary or secondary markets to sell to local butchers or more prominent traders who then export them. Second, pastoralists benefit from direct sales to butchers and shop/kiosk owners who sell a variety of consumer goods because they can sell their animals directly to butchers and shops in exchange for cash or goods.

Thirdly, middle-level traders purchase livestock from pastoralists at catchment and primary markets and occasionally deliver it to secondary markets in the interior. In contrast, the fourth mode is facilitated by out-of-county traders, primarily of Somali and Borana descent, who travel to the major markets of Lodwar, Lokichar, Kalemng'orok, and Kakuma to purchase trailer-loads of livestock for the Nairobi market. The following diagram shows how the livestock trade works in the country.

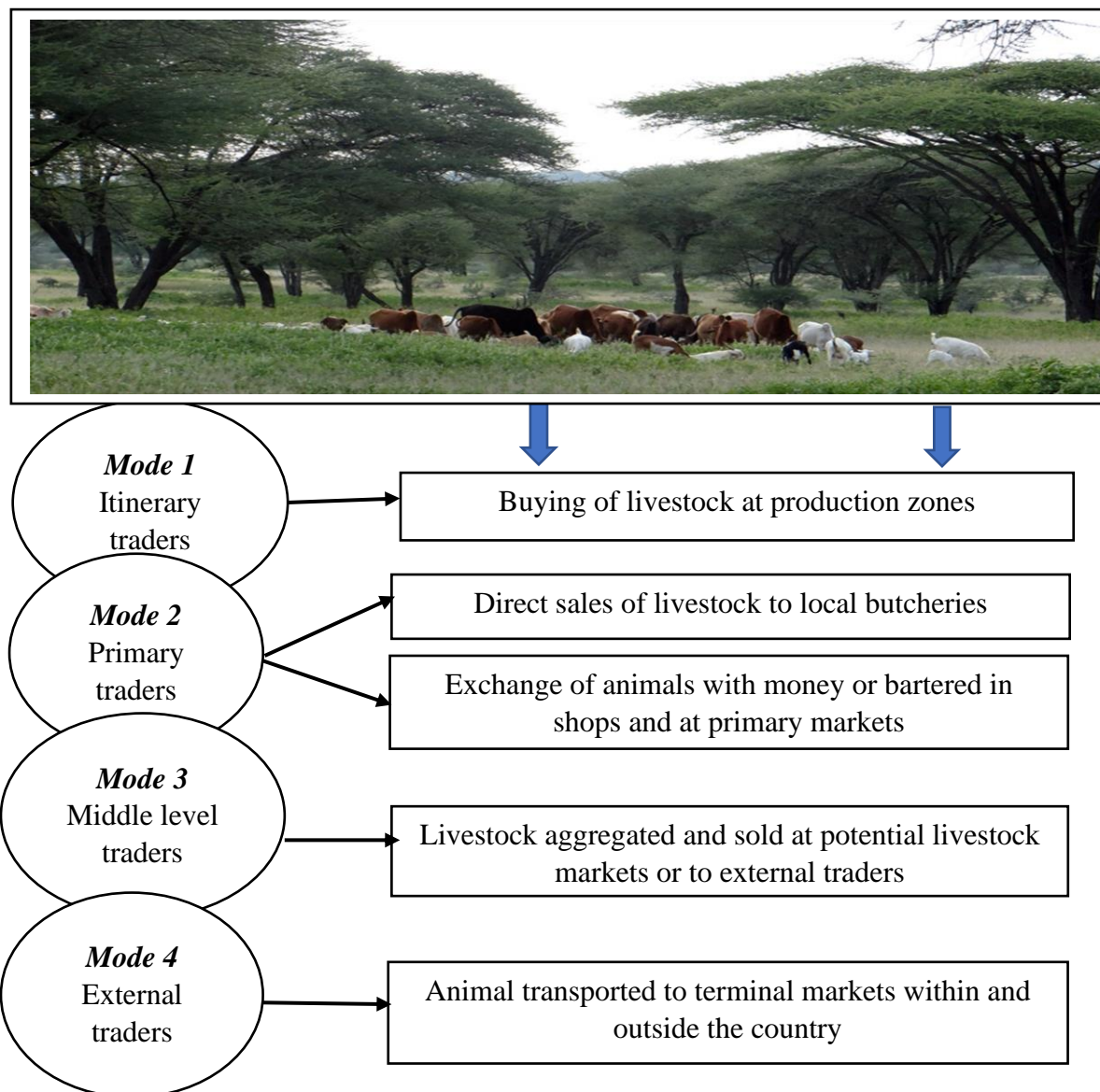


Figure 4.7.5-1: The cherished livestock marketing model for Turkana

Focusing on developing the capacities of Turkana pastoralists to cultivate healthy, productive, and competitive livestock resources is a strategy to empower livestock development systems, thereby enabling a paradigm shift from total domestication of livestock to integrating commercial livestock farming elements. This result will also help livestock producers (pastoralists) get used to markets and learn to expect gains from their livestock in a sustainable way.

4.7.5.5 Building on Livestock Trade and Marketing Impacts. The National Drought Management Authority (NDMA), International Livestock Research Institute (ILRI), Practical Action, the former Ministry of Northern Kenya, Turkana County Government, and United Nations Organizations, which include UNDP, FAO, WFP, IOM, and other projects implemented by non-state actors working in the county, have significantly increased livestock marketing in Turkana County.

Small-scale livestock marketing initiatives have improved pastoralists' attitudes toward the cash economy, thereby reducing bartering in urbanizing regions. Livestock marketing yards are places where local governments, livestock marketing associations (LMAs), and other institutions of community leadership share information with other pastoralists.

Livestock markets are also points of disease surveillance where livestock producers and traders interact with the government and civil society organizations to share information on livestock diseases, pests, and the condition of forage in the grazing fields, as well as the state of drought, insecurity, and coping mechanisms that are essential for season-long livestock production and trade. Ideal livestock development in Turkana would be guided by a policy direction that is crystal clear. It will set up strategic pillars and put the spotlight on activities that stakeholders in livestock development can help with at different times of the year when animals are being produced or sold.

4.7.5.6 Documentation of Livestock Initiatives. Entrepreneurial livestock keepers and traders focus on livestock trading to improve the socioeconomic standing of livestock-dependent populations and businesspeople. Animal husbandry is important to the economic growth of pastoral areas, and the money made from selling livestock and raising them helps other investments.

The documentation of areas where livestock marketing initiatives were successfully implemented will facilitate the application of these lessons to other areas promoting livestock trading. Knowledge capture will identify livestock development's strengths, opportunities, weaknesses, and threats. Similarly, documentation will include sociocultural, economic, political, and environmental factors pertinent to livestock production and trade in pastoral regions. The information and facts that come out of it will help stakeholders learn more and make better decisions.

The documentation will also identify knowledge gaps and provide potential recommendations for maximizing livestock trade and marketing in the United States and internationally. The review of livestock-based projects in the context of Turkana and other similar dryland areas of Kenya will examine the costs and benefits of past and current livestock business strategies in order to influence policy and ensure the long-term viability of investments. Using past and present livestock business strategies, community needs, and priorities to be met with good marketing strategies and guiding community perceptions of their needs and priorities makes it easier to learn and use good livestock marketing practices.

The scope of livestock-based intervention programming is determined by the aspects that need to be modified to address current community challenges, the costs involved, the outcomes and effects, and the sustainability of livestock trade and marketing initiatives. When rethinking livestock business strategies, the decision criteria, assumptions, applications, costs, creating relationships from qualitative and quantitative data, proposing preferred alternatives with justification and rationale for livestock business concepts, and taking responsibility for the results will all be taken into account.

4.7.6 CASE 6: *Climate Change Impact on Livestock Development*

4.7.6.1 Livestock Keeping and Climate Change Phenomena. Many of the reviewed documents describe climate change as referring to significant changes in temperature, precipitation, snowfall, or wind patterns that last decades or longer and are caused by both human and natural factors. According to Shibia (2018) and Wambui et al. (2016), climate change is a natural and immediate threat to the world's people and ecosystems.

Significant changes are occurring on Earth, including rising air and ocean temperatures, widespread melting of snow and ice, rising sea levels, and, most importantly, visible signs of changing climatic and environmental trends felt by nearly all components of the global ecosystem. Concerning the environment, biodiversity, and their possible connections, the environment and biodiversity remain at the center of the climate change debate, with frequent references to the richness of the environment as shown by biodiversity and its multipurpose uses.

Africa, in particular, is one of the regions most susceptible to climate change. The biodiversity of numerous ecosystems in Africa is threatened. The supply and demand for large-scale development keep putting pressure on resources that are already scarce. This puts at risk the heavy reliance on natural resources, which is made harder by high temperatures and low rainfall.

As the world changes quickly and becomes more globalized, people are coming up with new ideas and inventions to fight the causes of climate change, which are making the already high diversity and variability of weather between seasons even worse. This

supports the idea that giving up traditional ways of making a living that have been shown to be resilient to weather changes leads to a decline in the ability to adapt.

4.7.6.2 Climate Change and Sustainable Development. Climate change, a global catastrophe of both the 20th and 21st centuries, poses an ever-increasing and grave threat to the global environment and development. The degree to which the concept of "sustainable development" is grasped will determine the extent to which humanity's spheres will improve. For many decades, proposed definitions of the scope of sustainable development have undervalued key areas of focus that make it possible for development to be whole and sustainable.

Sustainable development is the elimination of poverty for present and future generations through the management of land and natural resources while minimizing the risk of radical ecosystem change, as stated in the Brundtland report. This signified the rebirth of a new understanding of climate change and the potential for effective adaptation and mitigation. Rosegrant et al. say that in order to understand climate change in the context of sustainable development, you must use systems thinking and complexity management.

4.7.6.3 Climate Change and Food and Income Insecurity in East Africa.

In many regions of the developing world, food security remains a problem, and the high cost of essentials has placed a large number of the vulnerable poor into insecure food situations. As the economy has grown and poverty has decreased, the agricultural sector has become less important.

Rural development, on the other hand, is not limited to agriculture alone and has strong ties to health, education, the private sector, water, energy, and the environment. Climate change could hurt food security policies and cause permanent damage to the natural resources on which agriculture depends. This would slow down the process of sustainable development.

Consensus is evident in the reviewed literature regarding the potential high impact of climate change on East Africa and the relatively low adaptive capacity of the rural population, resulting in a vicious cycle that further reduces the ability to adapt to anticipated changes. Rising food demand in Africa is currently driven primarily by the continent's expanding population.

In the majority of the least developed nations, domestic food production cannot keep pace with rapid population growth. Also, areas with a lot of biodiversity tend to be much more resistant to these kinds of environmental changes, while ecosystems that have been damaged are much more likely to be affected by climate change.

4.7.6.4 Climate Change and Policy Development. The expressions "climate change is already occurring" and "severe and diverse impacts are being felt across the globe" appear frequently in the reviewed literature. Also, regular analyses of key climate parameters have shown for a long time that Africa will be the most vulnerable and hardest hit by the effects of climate change, which are known to affect every part of humanity and development.

Climate change will have more effects on production, disasters, and different ecological ecosystems as the effects of problems like land-use changes caused by humans, poverty, high population growth, and rising demand for natural resources get worse. This is because climate change will have direct effects on important environmental parameters like temperature and precipitation.

The effects of climate change on glaciers and water supply include the dramatic melting of glaciers and snow, which limits the capacity of water towers for significant river capture and year-round precipitation. Literature demonstrates that the poorest members of society are most reliant on crops and livestock for employment and income but are hampered by diseases that threaten the health of humans, livestock, crops, plants, and terrestrial and aquatic wildlife. Temperature and rainfall are the two most important climate factors influencing how much natural resources can be used.

Ogutu et al.'s (2016) and Wanyoike et al.'s (2018) work on the effects of climate change talks about this school of thought in detail. In this school of thought, changes in precipitation are thought to affect the presence and absence of vectors and water-borne diseases, which changes the performance of production systems that depend on environmental ecosystems.

Human migration is also a response to climate change. Before climate change intensified, semiarid regions of the Sahel, the Kalahari, and the Karoo supported nomadic societies that migrated in response to annual and seasonal rainfall and extreme climates. However, prolonged drought has demonstrated these groups' sensitivity to climate change. Also, since there are many things that stress biodiversity, climate change makes the stress on environmental systems worse beyond the point where they can recover.

In their study on climate change and food security in East Africa, Tilahun et al. (2017) confirm that climate change is predicted to have far-reaching consequences for the poor and marginalized. The vast majority of people rely on agriculture. This means that if global warming keeps going, the situation is likely to get worse and make it harder for the most vulnerable farmers to stay alive.

4.7.6.5 Climate Change Mitigation and Management. Adapting to and reducing the effects of climate change have been powerful tools for bringing together important strategic plans and initiatives. This has made it easier to act on climate change and invest in the future. This effort is predicated on the notion that "everyone is a target of global climate change strategies" (Berhe et al. 2016). So that everyone can help stop climate change from getting worse, it's important to carefully implement strategies that make the environment more resilient and able to adapt to climate change, as well as those that make sure resource management and development are compatible with the climate and good for the environment.

Future climate adaptation must account for increased uncertainty and high levels of unpredictability. Therefore, climate change frameworks should include the development of integrated adaptation strategies at the national and regional levels that

enhance and implement measures to reduce, moderate, and take advantage of climate impacts.

Increasing economic and livelihood diversity; encouraging skills, learning, and innovation; reducing inequality and reliance on ecosystem services; and, of course, ensuring that decision-making processes at multiple levels are well connected with stakeholder participation. In this regard, Tilahun et al. (2017) show that coordinated planning makes regions more resistant to climate change by making it easier to invest in disaster risk reduction, the development of measures to protect food security when droughts increase food demand, technological advancements, and integrations.

Approaches to climate change are based on seven main principles: sustainable socioeconomic development, broader cooperation, subsidiarity, compatibility, and additional precautionary standards, public participation and consultation, accountability and transparency, socioeconomic equality and gender equity, and compatibility, compatibility, and additional precautionary standards.

Cross-sectional analysis of climate change strategies proposed by several global and regional bodies, such as the World Trade Organization (WTO), the East Africa Community (EAC), and the National Irrigation Authority (NIA), among other institutions, reveals that information on climate risks can be used to achieve climate change's key outcomes. Climate change mitigation stakeholders can get more data by combining impacts and vulnerabilities and making it easier to get information.

A holistic approach to disaster risk reduction (DRR), planning for long-term changes capable of managing the variability of climate change and extreme events, adaptation, and risk reduction for socioeconomic development, taking into account sound

socioeconomic development, low-carbon effects on growth and development through the use of a combination of clean energy technologies, scaling up financing for new climate change investments, and regulating emerging specialized instruments.

Numerous planners, decision-makers, and implementers of climate change strategies attempt to ground their reasoning on facts concerning the reality of the climate change phenomenon, its effects, and future global expected climatic parameter scenarios (Berhe et al., 2016). Planning for climate change has been affected by economic growth and development, which show a growing need for natural resources. Climate change and other factors are causing climatic shocks in the environment.

Environmental assets provide essential ecosystem services that support livelihoods and socioeconomic development. Plans, policies, strategies, and other measures are needed to deal with the effects of climate change and emergencies (Berhe et al., 2016). The financing of climate change has also remained a persistent obstacle. The Paris Declaration of 2015 and other documents agree that aid works better when both partner governments and development partners are accountable to their own people and to each other for how they use and manage resources to achieve development goals (Silanikove and Koluman, 2015; Berhe et al., 2016).

4.7.6.6 Climate Change Policy Planning and Opportunities. The long-term prediction of climate change takes into account that the climate is the most valuable natural resource in the world, that it is inextricably linked to human welfare and socioeconomic development, to man's relationship with nature, and to survival or extinction, and that it has effects on a global scale (Ogutu et al., 2016).

Multiple levels of climate change strategies should focus on enabling stakeholders to be successful in the fight against the manifestations of climate change, according to a prevalent sentiment expressed in a variety of scholarly documents. "Early Warning Systems" are one of the oldest ways to deal with climate change. Banks use them to make more people aware of climate change and its effects, but they don't do much to stop the effects they predict.

With the observed dynamism of the 21st century, where technology dominates nearly all economic and social sectors, the capacity to comprehend and control climate change is expanding significantly. A cross-section of climate change strategies shows that, in addition to using early warning systems and building up institutional and human capacities, environmental restoration, sustainable production, and technological advances that are good for the environment are becoming important parts of climate change strategies (Wanyoike et al., 2018; Tilahun et al., 2017).

The global bodies in charge of coordinating climate change issues are always working to create, enable, and keep strong multi-level "stakeholderships" that work together to help move the climate change agenda forward.

4.7.7 CASE 7: Developing Efficient Livestock Farming Systems

4.7.7.1 Focus on livestock farmers in the drylands. The livestock industry is gaining popularity and is an economic pillar for many nations, regions, and communities whose livelihoods depend on livestock keeping. Additionally, agriculture has remained a pillar of commerce and foreign exchange. In the third world, it is a product of the traditional economy for many when the market does not drive production.

Increasing food insecurity in Africa, particularly in this era of climate change and population explosions, has sustained an increase in food consumption outlets, nutritional demands, and thriving markets. The significance of food as a basic human need cannot be overstated. The desire to connect (micro and macro) economies shows how important it is to have production points, points where value is added, and points where production is finished.

In every production stage, whether ascending or descending, marketing and markets are essential. Regarding the severity of food insecurity in disadvantaged regions of Africa, the rapid expansion of small-scale economies in a world undergoing rapid change is identified as one of the noble solutions for reversing the persistent trend of food insecurity through inventions, innovations, and stakeholder empowerment. This maximally transforms farming practices from a traditional economic entity to a capital investment with substantial anticipated short-and long-term returns.

Food security is deemed complete if people of all ages have enough sustainable, balanced, and balanced foodstuffs on their tables and enough money to pay for other essentials of life, as well as if there is continuous investment in the food security continuum (WFP, FAO, and UNICEF). Consequently, the "food" and "money" aspects of

food security can be attained if agriculture and industry are operated in an entrepreneurial manner. Because marketing strategies are so strong, production entities can make the most of market opportunities through customization (market-tailored production) and get a competitive advantage.

For centuries, producers in many regions of the world have remained impoverished due to a lack of access to markets and the maintenance of those markets. Even in environments with a lot of competition, businesses can make marketing plans that are focused on the future by taking into account demand-driven production and the ability to solve customers' problems.

Thorough marketing enables producers' projects to achieve maximum market share, a record-breaking increase in revenue, and break-even (the point of no profit or loss) during difficult business situations. Strategic business decisions need to be put into action in a way that is unique, efficient, and practical. This is what drives the business agenda to get its share of the market and make money.

It is also prudent, when implementing the business development plan via marketing, to continuously monitor the indicators impeding the successful execution of proposed business strategies. This will ensure the achievement of desired goals, which are essential for implementing the business strategy and maintaining its competitive edge, season-long profitability, and viability across all targeted markets. Today's globalization is fast and furious, and technological advances are driving action research processes that are crucial to helping production systems and businesses come up with more profound, meaningful, and long-lasting answers to the needs and demands of the clients they want to serve.

Agriculture and industry sectors, with their highly modernized and mechanized content and processes, should be well-calculated as investments in which the prioritized businesses would, of course, recoup these production costs with substantial profits. Such capital investments should be evaluated in order to figure out the viability of businesses at both the microeconomic and macroeconomic levels. This is especially important during the planning stages of a business.

Business planning enables the marketing component to realize the proposed business plan and fulfill financial obligations. Diverse approaches to public and private service delivery that aim to create food and income-secure societies lack coherence, a common objective, and a long-term vision. A strategy is a pattern in a series of decisions that enables strategic marketing to define and enhance production value through market capitalization. This will look at brand propositions, competition, risk and uncertainty management, and best practices for growth. If marketing isn't done right, there will be a never-ending list of advertising and promotion tasks that won't get done, even though a lot of money will be spent on them.

To get the best business results, it is possible to deal with potential problems in strategy implementation by putting together strong networks for strategy implementation. Consequently, measures must be defined to quantify the identified market's size and profit potential. To reach its goals and objectives, marketing must be able to be measured and held accountable for achieving business goals. These goals are set by small, disciplined subsets of business cultures, stakeholder roles, and responsibilities.

Agriculture and industry in Africa are contingent on relief assistance. In promoting agricultural investments using small-scale farming and food security strategies in the drylands, the greatest challenge has been acquiring small-scale holders who understand the market-oriented, profitable, and sustainable economics of their production (investments and returns on investments). This is not necessary, especially since local production factors are available and actors can work with communities to solve problems with food and income security.

Despite material and labor-intensive investments made in the production and marketing of goods, producers realize dwindling profits that are insufficient to sustain production and address food security issues. Technological and creative industries such as the "Jua Kali" (artisan) sector in Sub-Saharan Africa have never dominated local markets due to poor interconnectedness of business partners and inefficiencies in production, resulting in products that are easily challenged by foreign brands, particularly those from Asia. So, strategic plans for production and marketing will help us learn more about making products for markets, capitalizing on markets, increasing product turnover and profit margins, and securing income even when production odds are against the entrepreneurs.

4.7.7.2 Economics of Livestock Production and Industry Competitiveness.

Despite the fact that Turkana County is dry year-round, there are numerous areas with water and pasture potential, as well as an emerging creative industry and tourism, expanding trading centers, and a diverse pastoral economy. This indicates that season-long dryland farming through rain-fed and irrigated farming systems, livestock production, and local trade are feasible, albeit on a modest commercial scale. The colonial government exploited such opportunities as early as the 1940s, and FAO has done so since the 1960s.

The Kenyan government, through the Ministries of Agriculture, Livestock, and Fisheries, the County Government Ministries, and private sector partners with a thematic focus on crop and livestock farming, as well as trade and microfinance, has contributed to the alleviation of food insecurity over the past several decades. Key areas of action have included, among other things, better farming techniques, irrigation, pest and disease control, farmer training and exposure, market development, the introduction of drought-resistant crop varieties, trade, and emergency response.

Despite these investments, recurrent obstacles inhibit livestock and crop production as well as small-scale commerce. The majority of animals and farmers currently engage in crop farming without a market in mind (subsistence farming with a slight surplus). This makes the available markets "buyer's markets," because buyers tend to control market forces like demand and supply and even form cartels to keep prices low and help themselves!

This is attributable to an excessive reliance on relief assistance to produce food, primarily for domestic consumption, and grants to conduct business, thereby jeopardizing

the development of producers, vendors, and consumers, which could have been achieved by integrating business objectives in a profitable, self-sustaining manner. Food production isn't as efficient as it could be because of failed investments. This means that farming that relies on foreign aid does not use the appropriate amount of inputs to achieve the desired outputs and trade.

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The culture of community-based agriculture (using community efforts) is not fully utilized, which would empower the "food insecure" to actively participate in issues pertaining to their wellbeing! The consequences of excessive reliance on foreign aid and the traditional economy have plunged the majority of dryland communities into extreme and abject poverty. Even though a lot of work is put into making food with the infrastructure we have, economic returns from these investments are not maximized because making food for markets is not the main goal of crop and livestock farming or business.

Approximately 20% (80% consumed domestically) of local production reaches its intended markets but is fiercely contested by similar brands produced abroad. Local brands remain secondary options in markets not because of their inferior quality but

because they receive less marketing and customization. Such brands can also be found in low-class markets in cities and commercial districts. Low-income earners have access to and dominate these markets. This makes it harder for local brands to compete in key markets, gives foreign brands and traders a competitive edge to fully dominate the most profitable and stable markets, and keeps the economic returns for local brands low.

Market capitalization is widely believed to add value to farming and commerce in Turkana and other drylands of Kenya and the East African region. For decades, transforming a society characterized by domestication required breaking the "ice bag" of tradition, culture, and resistance to change. By making production more like a business, new ideas will grow about the cost of production and the profits that come from it.

Strengthening policies and frameworks for public-private sector partnerships, linkages, and governance will empower stakeholders, including communities, to consider the necessity of maintaining production costs and, of course, recouping these costs to the greatest extent possible through agricultural and commercial profits. This will be done by decentralizing agriculture, production value chains, and market opportunities; changing the way people think about production; and managing competition.

It is smart to look at and write down ways to increase, scale up, and keep up the productivity of farming in the drylands. This can be done by putting more focus on strategic production planning and marketing, as well as the need for competition to get the most money from both internal and external markets.

It is essential to address the political, economic, social, technological, legal, environmental, and even ethical challenges that exist and to suggest potential solutions for transforming these obstacles into success factors for businesses and markets. The

fact that crop production sites are close to highways that lead to big cities is still important if you want to get the most out of the production opportunities that come from connecting production sites with urbanizing market centers.

It is essential to address the political, economic, social, technological, legal, environmental, and even ethical challenges that exist and to suggest potential solutions for transforming these obstacles into success factors for businesses and markets. The fact that crop production sites are close to highways that lead to big cities is still important if you want to get the most out of the production opportunities that come from connecting production sites with urbanizing market centers.

The diversity of consumption outlets, which includes an increasing number of primary and secondary schools, children's homes, colleges and universities, hospitals, dispensaries, and health facilities, as well as suburbs in major cities, indicates the possibility of increased consumption and trade of agricultural and industrial products. The economy of the drylands would change if government services, such as livestock production and veterinary care, agriculture, water and irrigation, land, tourism, and trade, were not all run from one place.

The current objective is "strategic thinking and planning" to formulate and execute strategic production plans across multiple time horizons with clearly defined goals. Strategy is a plan, a tactic, a pattern, a position, and a point of view. It would guide the involvement of stakeholders in livestock production and marketing, as well as the social and economic growth of communities and regions that depend on livestock.

4.7.7.3 Promoting the Viability of the Dryland Economy through Markets.

Numerous studies on diverse dryland farming and trade topics have been conducted in Northern Kenya by national and county governments, civil society organizations, research institutions, and individuals. Horticulture, Field Schools, Rural Development, Pastoralism and Fisheries, Natural Resource Management, Range Land Management, Drought and Coping Mechanisms, Conflict Resolution, Policy and Development, Poverty, Disaster Risk Reduction, and Climate Change are a few examples.

The overarching factor in all of these studies is "food and income insecurity," which is sustained by illiteracy, poor market access, and a low cash economy in rural areas. Even though the reasons why these kinds of studies are done make it clear what the results are, the recommendations and actions to fix the problems found have been different. In accordance with their mission to "improve lives," the majority of these plans are implemented through relief aid and donor funding.

Focusing on social indicators of interventions and fewer economic indicators tends to dilute the non-profit mode of operation of agencies, causing communities to place less emphasis on economic gains, i.e., "money." Despite numerous interventions, this strategy undermines the totality of food security. For producers, vendors, and consumers to revitalize their economy by refocusing on economic output, a paradigm shift and a shift in strategic focus are required. Investing in markets and high-yielding strategies would therefore help reverse the trend.

4.7.7.4 Building a Strategic Focus for Production and Marketing. Strategic marketing establishes offerings that provide value to customers, clients, partners, and society by designing and promoting the right products and services. To facilitate the content and processes of strategic marketing, organizations and processes are required to investigate, create, and deliver value to satisfy the needs of a target market at a profit by identifying the unmet needs and desires of potential customers and markets. Marketing can also be the messages and actions that induce messages and actions.

Incorporating cognitive concepts into business and enhancing functional and organizational performance, marketing reinforces communication and the development of dynamic, yielding, sustainable, and expansive business-oriented activities. So, strategic marketing looks at important parts of business situations, like who the customers are and what they want and need; the strategic goals of competitors; possible market offers; market share; revenue capitalization; product value; and supply chains.

To reap the benefits of a strategy, producers and marketers must evaluate investments as soon as possible in order to maintain a competitive advantage, valued market share, and growing revenues. In addition, it is prudent to ensure that "generic business strategies" are readily accessible and applicable for production and business purposes. As businesses should be made and marketed with the customer in mind, marketing is in charge of giving all potential customers and consumers a 360-degree (round-the-clock) experience.

Identifying customers' touchpoints and putting in place the best actions to address them helps match the right actions with the right clients of specific products, thereby scaling up and reducing production costs and commodity prices via economies of scale

(reducing the cost of a unit by scaling up production). Increasing options and varieties of the same products (opportunity cost), along with other production and marketing dynamics, will facilitate market integration, customization, and growth. Focusing on networking and making brands that are in high demand and can support themselves will help businesses find their target market and customers who are strongly connected to their goals and plans.

4.7.7.5 Market Share and Market Gains. To effectively secure market share, businesses should do their utmost to inform potential customers of the current commodity markets, participate actively in the creation of the products, encourage the demand for the products, and inform other customers about them. In the drylands, there is still an urgent need for affordable food security of the highest quality. Due to the current demand resulting from the needs and desires of customers and consumers, there is still a need to convert customer needs into revenue by maximizing opportunities within businesses to achieve greater returns on investments. Marketization necessitates unique selling propositions (USPs) for market-bound products.

The company that sells the most products is the one that strategically puts itself in the shoes of its customers, keeps researching what might motivate potential customers in the area to buy and make buying decisions, and figures out in advance the real reasons why potential customers would choose its products over those of its competitors.

For the purpose of creating a distinct enterprise value, robust marketing strategy assists producers in selling more products in the targeted markets and delivering a compelling and differentiated offering. Notable is the fact that preparing an audience to receive a direct sales pitch is a method for creating distinctive value for both products and

services, which can increase business profitability. This action conforms to the marketing management functions of "Analysis, Planning, and Control."

4.7.7.6 Livestock Pricing, Positioning Strategies, and Distribution Plans.

Marketing generates demand by making customers realize how much they need something they did not know they needed, facilitated by integrated campaigns designed to generate and positively influence sales, brands, value, and vision. The key to making the most of a market throughout a season is to make sure that your pricing and positioning strategies are in line with the way the market works during that season.

Using the Price-Value Matrix, the following positioning strategies were determined: "skim" (price above the rest), "match" (price on par with the competition), "surround" (first room type as the cheapest), "undercut" (attract more customers), and "penetrate" (low price in the market with benefits and drawbacks).

Marketing ensures the delivery of goods and services from a point of production or a commercial agent to end users. Businesses can provide a variety of products to the market. Supply chain management systems are essential for facilitating customer purchases. This expectation depends on whether or not the Customer Relationship Management (CRM) systems and operations and quality management frameworks are good enough to make customers happy and satisfied in a reliable and long-term way.

4.7.7.7 Business Offers and Marketing Materials. It is the goal of every business to acquire and retain current customers as well as seek out new ones. This is done because it is always essential to concentrate efforts on gaining profound insights into customer behavior and overall market conditions in order to drive profitable and sustainable growth for businesses by committing to creating highly reasonable offers that are consistently and elegantly communicated to customers. Free trials, money-back guarantees, bundles, and combining products are some of the deals used to entice returning customers. Most of the time, these kinds of deals will lead to faster and more stable growth in the number of customers.

If well-designed and implemented, marketing as a business factor will help extend across the entire purchase process, including research, engagement, purchase, and post-purchase, which includes supplementary support, returns, and advocacy. This system serves as promotional material for current and potential customers. By using different ways for producers and customers to talk to each other, livestock-based businesses can keep in touch with their customers and educate, inform, and build long-term relationships with them about the services they offer.

4.7.7.8 Promotions and Conversions Strategies. Currently, there is little product promotion, particularly in dryland markets. A marketing strategy will utilize the available opportunities to reach prospective customers. Among the most important promotional strategies are television advertisements, trade show marketing, press releases, online advertising, and event marketing. In arid areas, products and services are mostly marketed through field days and random demonstrations.

Increasing consumer preferences, likes, and dislikes are crucial in determining product turnover and the ability to make large sales in today's markets, which necessitate the capability to attract and retain customers. Conversion-boosting strategies are those that successfully convert prospective customers into paying customers. So, businesses should keep finding ways to bring in customers and get them the products and services they need to be happy.

The extent to which a business strives to maximize its business potential and market share is contingent on the extent to which it comprehends the buyers' reality. The production of various sales scripts as a means of increasing social proof for goods and services that have attained market capitalization and benefited customers both socially and economically is of equal importance because it empowers, transforms, and updates potential customers and the general public regarding business products, modes of service delivery, and the potential to satisfy needs. Using heartfelt testimonials from past clients who were happy with the business's services will show that it is more need-based, demand-driven, and results-oriented.

4.7.7.9 Joint Ventures, Partnerships, and Referral Systems. The danger of partnering with other profit-making enterprises dealing with the same businesses, especially when the market is not diverse and stable, is that it may result in unwarranted competition with regard to market share distribution. With a clear plan tied to specific sales expectations, clear conditions for customer satisfaction, and the long-term viability of the offered products, the expected partnership agreements should primarily focus on acquiring new customers and maximizing the revenue from existing customers. Because no business exists in a vacuum or makes products and services that satisfy 100% of customer needs, the marketing strategy should recognize the need for customer referrals by encouraging potential customers to tell others about the business.

The emphasis on when such referrals should be made is essential for the enterprise to maximize investment sales. The referral strategy will increase the number of connections and networks between the company, its clients, and other partners dealing with the same businesses. To be successful with referrals, reward mechanisms for customers who refer other customers to the business must be implemented. It will include discounts and bonuses, free training and exposure, and certifications.

4.7.7.10 Transaction Prices and Marketing Protocols. Regarding strategic marketing and multifaceted tactical processes that support sales, customer service, and customer retention, a successful company secures sales by focusing on transaction prices. Using yielding strategies will increase revenue and profit per customer. The company will do a performance review to find out what makes its production, pricing, and growth successful.

Utilizing all available resources to consistently deliver on the fundamental principle that it is not what you want to sell but what customers want to buy will assist in driving the business agenda regarding customer needs and desires. Unique selling propositions (USPs) should be closely watched and, if necessary, changed so that transaction pricing and propositioning can be used throughout the whole season.

Using all available resources to consistently deliver on the fundamental principle that it is not what you want to sell, but what customers want to buy, will help drive the business agenda in terms of customer needs and desires. Unique selling propositions (USPs) should be closely watched and, if necessary, changed so that transaction pricing and propositioning can be used throughout the whole season. Retention is the process of converting strangers into brand advocates through engagement.

The retention strategy of businesses will be strengthened by attracting anyone who has the potential to continue purchasing from the company and providing them with an environment that encourages them to do so. A sufficient number of customers and the profits derived from their purchasing power will enable the company to meet demand and supply requirements. This is done by remaking and rebranding products based on how the market is changing and what consumers want.

Total Quality Management (TQM) ensures the durability of business products and the continued satisfaction of customers. Another thematic practice is keeping customers and the public informed through the media and other customer loyalty programs. The retention strategy is important because marketing is a never-ending game that needs to be constantly improved, changed, and relied on for the long-term success and growth of business goals.

4.7.8 CASE 8: Turkana Livestock Sector Performance – PESTLE Analysis

4.7.8.1 Political and Economic Factors. Instigated by successive governments, multiple opposition parties, and civil society affiliations, Kenya's political hegemony has a significant impact on both publicly and privately traded businesses. Understanding the importance of autonomy, initiative, and perseverance is crucial for fostering healthy and prosperous businesses in the face of intense political interference. Tax policies, budget policies, and trade tariffs should all be looked at to protect businesses from legal problems.

By adhering to legal frameworks, political effects on the business environment (i.e., the economic environment) will be mitigated to a greater extent, and market opportunities will be thoroughly explored. Specifically, in Turkana County, the poverty rate exceeds 80%. A small percentage of the population engages in petty trading, fishing, and handicrafts in order to survive, but cereals and livestock products are the primary sources of nutrition. This kind of economy has a direct effect on how companies do business with each other in order to get a lot of customers and a good return on their investments.

The ability to see opportunities where others see chaos, contradictions, and confusion is crucial for business and economic development. The Kenyan shilling has depreciated 30% against international currencies over the past decade due to the impact of inflation on the cost of conducting business. If economic factors aren't closely watched, a business collapse or a recession on a national scale could happen.

Concerning entrepreneurs and consumer behavior in a business environment, enterprises will repeatedly refer to the purchasing power of commodity consumers, changing demand and supply models for that economy, interest rates, foreign exchange

rates, and economic growth patterns in order to safeguard the business environment from political and economic failures.

4.7.8.2 Social and Technological Factors. The majority of dryland production systems continue to display characteristics of the traditional economy, despite the increasing number of entrepreneurs and the rapid urbanization of trading centers, which strengthen the market economy dimension. Changes need to be made to the market's social environment so that ambitious production can be used to make more money from both primary and alternative production systems.

In Turkana, the production culture is still traditional and revered, with only about 10% of the population engaging in commercial enterprises. Although there is a high turnover, particularly for seasonal goods and services, the consumption of livestock products is significantly greater than that of crop products. When the economics and time required to nurture livestock production are compared to short-term periods in crop production, crop products and livestock value chains are more cost-effective and profitable from a business standpoint.

The older entrepreneurial businesses in the region engaged in the same line of work have made extensive use of technology to produce and preserve farm products. However, this technology necessitates the indiscriminate use of modern pesticides and other inorganic food production techniques. Due to people's ignorance and the problems that come with it, such as a rise in pests, food poisoning, and complications related to cancer, there is a growing campaign to reduce the amount of inorganic substances that come into contact with food.

To comply with new production and social policies, food products for public consumption should be produced and preserved using locally integrated technologies that promote organic, traditional, and non-chemical methods of producing and preserving food supplies. Consumer behavior, particularly product preferences, has been influenced by the demand for products manufactured using the safest techniques and inputs. This change presents a tremendous opportunity for traditional producers to enter new markets, as the demand for their products is evident. But this cannot be done if marketing doesn't bring producers and consumers together in the best way.

4.7.8.3 Legal and Environmental Factors. With the support of legislative bodies, production departments in the drylands have passed a number of laws, policies, and procedures to regulate crop and livestock farming and trade. These laws look at things like consumer safety, environmental efforts, the DO NO HARM principle, international relations, and labor laws, among other things.

Compliance with the stated laws, transparency, public accountability, and strategic intent aid in preserving market share and business prospects in a competitive environment. Climate variability poses the greatest threat to agricultural production and commerce in arid regions. Due to things like the right amount of rain and temperature, the best species of livestock might not do well enough to make farmers want to raise high-yield livestock.

Existing drought-resistant livestock species are an option, but their yields are insufficient to meet market projections. In addition, recurrent livestock disease and parasite outbreaks, limited forage (less land carrying capacity), and water shortages impede the achievement of a level of livestock production output that can support a

substantial market potential. These dynamics can be effectively managed by regularly evaluating environmental performance indicators for planning purposes. Even with these problems, investments in irrigation, crop varieties that can withstand drought, and livestock species have increased production. This means that local markets will be able to meet their needs in the future.

4.7.9 CASE 9: Strategic Management of Livestock Businesses in Turkana

Business strategic planning and marketing can be supported by robust theories and models. In addition to Michael Porter's theories, which make up most of the theoretical framework of this study, the game-theory models assume that firms are (hyper) rational utility maximizers. This means that they try to get the most desired outcomes while their competitors do the same.

A rational firm is expected to overcome rivals' uncertainty by forming competitive conjectures, which are subjective probability estimates of rivals' expectations and behavior. In essence, game-theoretic models assume intelligent firms that can place themselves in their competitors' "shoes" and reason from their perspective. This is best done by figuring out what competitors are doing, coming up with new ideas that will make money in the long run, and managing product quality based on price.

Through industry concentration, market pioneering through the introduction of new products, and market orientation, the action also influences the demand curve for a product's market share, causing firms to determine customers' needs and desires and satisfy them more effectively than their competitors. Competition is unavoidable in a free-market economy. Because of this, marketing has become the most important business strategy because it makes it easy for a large number of potential customers to choose between competing products.

In addition to facilitating the management of competition, Porter's model of competitive forces facilitates the marketing of products in the context of other competitive factors. The markets are competitive for businesses. Understanding industry competition aids in strategic planning, market share capitalization, and investment prioritization. The

model facilitates industry analysis and assists strategic managers in connecting remote business factors to their industry's efforts. New products and services are introduced so frequently that the ones that were previously available are pushed out.

Businesses will be hampered in their efforts to enter, compete with, and dominate local and regional commodity markets if they apply a low level of technology, have no external distribution outlets, and lack a brand identity. Nearly all industrially produced goods have substitutes that compete with them on the market. These alternatives are imported, and some are less expensive than local brands. The relative price performance of substitutes, fluctuating costs, and buyers' tendency to switch brands have made it harder for the local production sector to gain market share, especially for the poor, who make up most of the local industry's customers.

In every industry, suppliers are indispensable because they guarantee production inputs and facilitate the distribution of finished goods to consumers and markets. Local businesses face competition from suppliers because of different inputs, switching costs for firms and suppliers, cost relativity, the need for a lot of products, concentration, and forward integration. In this regard, regularized "business intelligence" is essential.

Refining a company's strategic focus is essential for achieving lasting success. Customers determine how much of a product or service's market share and how much it sells, so businesses must define their strategies in terms of both size and scope if they want to achieve the desired economic returns.

Strategic planning and marketing integration are ideal for improving business performance and strengthening the foundation on which customers and other stakeholders can interact and orient themselves with regard to supply and demand and

the pricing of products as individuals and institutions enter the business world. Cross-sectional marketing objectives include the expansion of business revenue channels through customer sensitization and service assurance. Gaining substantial market share among competitors, establishing an effective commodity distribution plan that will flood the market with efficient and incontestable company products, establishing a differentiated service system among its competitors and other potential business partners are all valuable product marketing objectives.

Establish a consumer service guide on customer satisfaction and product turnover with subsequent planning based on feedback; determine and protect the established market share through a customer information network and branding and rebranding of products; share the company's business model and press for its adoption by potential customers and business affiliates; and establish an advertising campaign. These objectives and goals should be innovative within the anticipated business horizon.

Effective business planning and marketing are attained through analysis of the business environment and the anticipated vitality of the current markets, taking into account market deficiencies and potential. In the same way, political, economic, social, technological, legal, and environmental factors that could affect a business should be looked at so that none of them stops the business from growing.

Internal analysis of factors such as business management systems, offerings, marketing systems, personnel and financial management, manufacturing, and value addition should be combined with analysis of external factors, such as consumer and social behaviors, for a coveted competitive advantage alongside other environmental business concerns. The company and its business ventures will be in a strategic position

for improved performance if they have a thorough understanding of the business environment. Targeting potential customers, keeping an eye on how much of the market you have and how much money you want to make, coming up with a unique selling proposition (USP), pricing and positioning strategies, and distribution plans would help businesses stay stable even when there is a lot of competition.

Consideration of the significance of business offers, marketing materials, promotions, conversion strategy, joint ventures and partnerships, customer referrals, strategy for increasing transaction prices, retention strategy, and marketing protocol also strengthens strategic marketing. Marketing is a process that includes a number of tasks that make a product more marketable and keep it that way.

In a free market economy, it is not the products for sale that are most important, but rather how potential customers or consumers are made aware of solutions to their needs. This is accomplished through strategic business planning and marketing! Many businesses, including some in the public sector, haven't met their financial obligations because marketing is not seen as important or, if it is, is not given enough money or is handled in an unprofessional way.

4.8 Evaluation of Research Results

4.8.1 Quantitative Research Results

According to quantitative research findings, the average age of respondents in the three Kakuma, Lokichar, and Kalemng'orok markets was 37.10 years old, with the majority of them being male and illiterate, and their main occupation being livestock keeping. The mean score of the traders' competitive rivalry in the sampled livestock markets was computed. The results indicated that respondents in Kakuma Livestock Market had the highest mean of 3.62 (with a standard deviation of 0.49) while respondents in Lokichar Livestock Market had the lowest mean of 2.79 (with a standard deviation of 0.44).

Kalemng'orok Livestock Market had a mean of 2.79 (with a standard deviation of 0.62). A post hoc analysis using Tukey HSD indicated a significant difference in the mean score of respondents in Kakuma and Kalemng'orok livestock markets, as well as Kakuma and Lokichar livestock markets, at the 5% level. There was, however, no significant difference between Kalemng'orok and Lokichar Livestock Market.

An analysis of the average mean score of livestock production and market access in the sampled livestock markets indicated that Kakuma Livestock Market had the highest mean of 2.89 (with a standard deviation of 0.50), while Kalemng'orok Market had the lowest mean of 2.09 (with a standard deviation of 0.50). Lokichar market had a mean of 2.54 (with a standard deviation of 0.54). A post hoc analysis using Tukey HSD indicated a significant difference in the mean score of livestock production and market access between all markets, that is, Kakuma and Kalemng'orok livestock markets, Kakuma and Lokichar livestock markets, as well as Kalemng'orok and Lokichar livestock markets, at the 5% level.

Simple linear regression was used to analyze the effects of traders' competitive rivalry on livestock production and market access. The coefficient of trader's competition and rivalry of 0.381 means that a one-unit increase in trader's competition and rivalry results in an increment of 0.381 in livestock production and market access. Based on these results, traders' competitive rivalry has a significant effect on livestock production and market access in the livestock market in pastoral areas.

An analysis of the average mean score of the balance between supply and demand in the livestock market indicated that respondents in Kakuma Livestock Market had the highest mean of 2.74, while respondents in Kalemng'orok Livestock Market had the lowest mean of 2.17 (these scores were significantly different; $F(2,165) = 25.124$; $P\text{-value} = 0.000$). A post hoc analysis for multiple comparisons using Tukey indicated a significant difference in the mean score of respondents in Kakuma Livestock Market and Kalemng'orok Livestock Market, and Kalemng'orok Livestock Market and Lokichar Livestock Market at the 5% level.

There was, however, no significant difference in scores for respondents in Kakuma Livestock Market and Lokichar Livestock Market. Simple linear regression was used to analyze the effects of traders' competition and rivalry on demand and supply. The coefficient of traders' competition and rivalry of 0.245 implies that a one-unit increase in traders' competition and rivalry results in a 0.245 increase in demand and supply. Based on these results, the trader's competitive rivalry has a significant effect on balance between supply and demand in the livestock market in pastoral areas.

The mean score on theory application and livestock production and marketing was computed and compared across the three livestock markets. On all three statements, the overall sample scored a mean of 3.00 with a standard deviation of 0.86. A significant difference in the scoring of the three markets was observed ($F\text{-ratio} = 20.528$). Lokichar Livestock Market scored the highest (a mean of 3.40 with a standard deviation of 0.59). The second-ranked market was Kakuma Livestock Market, scoring the highest (a mean of 3.11 with a standard deviation of 0.85).

The last market in the ranking was Kalemng'orok Livestock Market (mean of 2.48 with a standard deviation of 0.85). The post hoc analysis results using the Tukey HSD results showed no significant difference in scoring between Kakuma and Lokichar Livestock Markets since the mean difference of -0.286 was not significant.

Simple linear regression was used to analyze the effects of traders' competitive rivalry on theory, livestock production, and marketing. The trader's competitive rivalry coefficient was not statistically significant ($F\text{-ratio} (1, 166) = 2.652$; $p\text{-value} = 0.105$). The results confirm that theory application and livestock production and marketing were not significantly influenced by traders' competitive rivalry. Based on these results, the trader's competitive rivalry has no significant effect on the theory's application or livestock production and marketing.

The statistical study summary shows that the majority of livestock traders in Turkana County are of middle age, with a nine-year age gap between livestock dealers indicative of substantial differences in experience, resource capacity, and socioeconomic standing. The average livestock marketing experience of 12 years indicates that the industry is a reliable source of income for livestock producers and traders. The high

illiteracy rate signifies overwhelming inabilities for local traders to access information, communicate, and incur losses on transactions due to financial illiteracy.

It is pinpointed in Ryschawy et al. (2017), and Nyariki and Amwata (2019) show that lack of literacy among pastoralists and livestock traders is a problem for the rural economy. Locally and internationally, the scenario remains hazardous for the investments and competitiveness of traders. The fact that about 95% of livestock traders and livestock keepers are farmers shows the production capacity among livestock-dependent communities and the possibilities to sustain supply in markets.

The fact that selling livestock in Turkana can be a good economic opportunity and that people who don't own livestock haven't joined the market would hinder innovation, capital injection, and the attainment of a competitive market system. Since over 85% of livestock traders are men, this indicates that the livestock industry in pastoral areas is still male dominated. This finding is examined in greater detail by those who identify gender roles in livestock production and marketing as a challenge for developing the livestock sector in drylands.

4.8.2 Qualitative Research Results

In this section, it is important to note that certain sections of the qualitative results synthesis contain quantitative results that are strongly related to the qualitative data being synthesized.

4.8.2.1 Traders Competitiveness in Markets. Livestock production and marketing in Turkana are largely regarded by many as inefficient due to limited production factors and other sector challenges, including scarcity of pasture and water, recurrent droughts, insecurity, disease, the limited knowledge and exposure of livestock keepers, and the lack of dynamism in livestock markets. This also means that every problem has a big effect on how well livestock resources, markets, and production environments work.

Turkana is still regarded as a livestock disease zone, limiting the opportunities of local merchants to venture into potential markets and improve their competitiveness. However, responses to progressive livestock farming were recorded in areas with sufficient security, water, and season-long pasture potential, which included riverine areas, highlands, good micro-catchments, and livestock with comparable good live weights and body conditions that are able to generate high economic returns on the market.

The number of traders, livestock producers, and consumers benefiting from the livestock trade is increasing due to growing demand for livestock products in various markets. Those involved in the livestock trade are improving their income and diversifying their livelihoods and capacities to meet their socioeconomic and cultural needs. However, in areas where livestock production and marketing are failing, households and businesses

are negatively affected. In urban areas, this has raised the cost of livestock-based goods and services.

Since Turkana does not engage in the improvement of livestock breeds or the addition of value, the livestock breeds remain indigenous and inferior. The efforts by governments, non-governmental organizations, or faith-based organizations to introduce improved livestock phenotypes, especially for goats, sheep, camels, and poultry, are receiving slow adoption. Given the environmental and nutritional needs of such breeds, the limited factors of production in Turkana hamper the performance of such breeds.

The study also found that there are no formal marketing strategies guiding operations and trade in local livestock markets. The theoretical marketing approaches borrowed from similar pastoral areas in Kenya and Eastern Africa have not been implemented yet. This scenario still supports barter trading and the willing buyer, willing seller approach to livestock trading.

The absence of traditional approaches to livestock trading in Turkana limits local markets' and traders' access to highly commercialized and potentially lucrative livestock markets in the region. Lack of formal marketing strategies means continuing to use traditional approaches to livestock business in an environment of limited innovation and value addition, limited communication and networking, and the risk of unhealthy competition.

Pastoralism, nomadism, and transhumance are prime models of livestock keeping and pillars of the pastoral lifestyle. Coupled with high illiteracy levels, pastoral mobility, and limited access to information, the pastoral economy is progressing at a slower pace. The study also shows that there are differences in what livestock keepers know and how

they see things. These differences are caused by things like climate change, the uneven distribution of production factors, and the rising cost of raising and trading livestock.

Expanding trading centers, villages, and business investments and enterprises continue to deplete pastoral rangelands and grazing fields. Shrinking land for livestock is also decreasing livestock productivity, community wealth, and household wealth. This scenario predisposes pastoral households to the danger of leaving their pastoral ways of life, resulting in increased pastoralist migration to urban areas in search of wage labor and other means of survival.

Pastoralists believe that climate change manifestations and phenomena are eroding their lives and that the environment is a real and growing concern. In light of the socioeconomic, political, and environmental challenges posed by climate change, the capacity of local governments and pastoralists to mitigate the shocks is insufficient. So, the effects of climate change continue to be a big problem for developing livestock and making the lives of pastoralists better, which is something they want.

In addition to long distances to markets, high transportation costs, and a lack of information for producers, traders, and product consumers, there is a substantial disparity in the prices of livestock across markets. Such obstacles have a significant impact on the market-capitalization capacities of traders. Different prices for livestock also show that there is not a single pricing strategy for livestock in Turkana, as prices are determined based on buyer and seller negotiations.

Few livestock buyers, especially from tertiary markets able to purchase in large quantities, are attracted by unattractive livestock prices, leaving more producers unable to sell their animals. Similarly, the slow growth of markets and the weak institutionalization

of marketing systems result in a delay in the transition of livestock production from subsistence to the coveted commercialization status. Also, the lack of information sharing in Turkana makes livestock production and marketing more labor- and cost-intensive, low-yielding, and uncompetitive. This scenario also makes it less likely that the pastoral economy will grow and that the welfare of people who raise livestock in the drylands will improve.

Regarding the scale of livestock marketing in pastoral areas, traders seem to understand their well-created but traditional marketing approaches and operations within their respective markets and jurisdictions. However, traders cannot determine the scope and size of the livestock trade in their respective market domains. Even though they know there are a lot of animals, they cannot connect that to what the market needs at any given point in time. Based on these facts, it is indicated in Asante et al. (2018) that the illiterate portion of the population struggles to comprehend the complexities of market supply and demand functions in a given market domain, and the most affected are the pastoral communities with the highest rates of illiteracy.

In Turkana, where the rate of illiteracy is very high, this could make it hard for pastoralists who manage supply and demand to do business on the market in a way that is both sustainable and competitive. Through their capital, Somali and Borana merchants may monopolize the tertiary market, causing local merchants to become their suppliers. The business scenario will reduce the likelihood of local businesses entering and competing in foreign markets. Locally, high costs inhibit secondary traders' occasional aggregation of livestock purchases to supply tertiary or terminal markets, thus reducing the competitive advantage of local businesses and markets.

While the study reveals that livestock markets in Turkana are not mapped due to a lack of essential information for managing and developing the livestock sector in the country, this creates blind spots and gaps in livestock production and marketing. According to Abdu et al. (2016), market research and mapping produce solid business objectives. By looking at business trends, companies can plan for the future in terms of the number and quality of their products, the size of their customer base, and how they will deal with the competitive forces that are part of the business fields they are in.

4.8.2.2 Livestock Markets and Pastoral Economy. It is evident that households can sell their animals on the market, thereby gaining access to cash for various financial needs. Most livestock farmers keep their wealth in the form of animals. In addition, few livestock producers and merchants have bank accounts, indicating limited access to cash in pastoral regions. The fact that livestock farmers, traders, and butchers still work together to sell livestock products to the public shows that markets help people connect with each other.

Continuous livestock trading in the country's livestock markets results in an increase in cash flow to rural areas, thereby boosting the finances of herders and the household economy, though at a smaller margin because of the widespread practice of livestock domestication and a few occasional sales in the market.

Such evidence is also provided in areas where livestock businesses run by merchants from pastoral areas and communities have strengthened the household resilience of their adopters. Additionally, livestock markets have attracted scientists, extension agents, and trainers who continue to pursue different areas of research to gather and disseminate knowledge important for the development of strategies for

livestock trade in drylands. The connection between livestock producers, markets, and professionals has resulted in the creation of numerous livestock development strategies and knowledge resources in various regions of eastern Africa. Such an achievement supports the establishment of animal agriculture and enterprise as crucial elements of the social and economic development of the arid and semi-arid land populations (ASALs). The study shows that stakeholder synergy makes it possible for market links, public-private partnerships and bonds, and the development of livestock product value chains that are aimed at potential markets.

The study identifies the paradoxical state of livestock prices in Turkana County, Kenya, which appear to be higher than in other regions of Kenya despite the county's location at the centre of livestock production catchment areas. The results also indicate that no market surveys have been conducted to determine the relationship between market forces and the costs associated with livestock production, marketing, and management of livestock market categories.

Inability to define and set prices accurately and conveniently for all market stakeholders retards the potential of supply and demand market forces and relations to guide market interactions, timeliness of product consumption, frequency of sales, and money circulating in the market.

4.8.2.3 Traders' Competition and Rivalry. Investigating traders' competition and rivalry, especially in secondary markets, showed that 49% of respondents believed that livestock producers and traders interact well in markets, but the majority of traders did not know the nature and scope of expected relationships. The research reveals variations in the understanding and presentation of market relationships. Berihun (2017) says that managing rivalry and competition in markets requires good relationships with different groups of people.

The 20% of people who disliked relations claimed that traders took advantage of livestock farmers by setting artificially low prices solely to benefit them. Traders, on the other hand, felt that some livestock producers suggested prices that were excessively higher than actual market prices. This is also interpreted to mean that pastoralists attach cultural value to their animals. This shows that fair pricing is important for making livestock farming a business and building production and marketing systems around a business model that can work and last.

The study identified that competitive rivalry undermines livestock marketing practices and stakeholder motivation to continue engaging in ethical business activities, as 57% affirm the existence of competitive rivalry in livestock markets. The fact that traders, who are the primary stakeholders in a livestock market, engage in competitive rivalry is an indicator of conflicts of interest in livestock marketing operations, resulting in the disorganization of marketing protocols and the consequent delay in access to markets and utilization of livestock business opportunities. 76% of respondents agreed that competition predisposes markets and stakeholders to the risks associated with severe competition and market malpractice.

Even though the study stressed how important competition is to market growth, 67% of the people who took part in the study thought that competition in Turkana is not making markets stronger or bringing prices down as it should. Competition is an important part of business, but in Turkana, it hasn't been well-defined or well-integrated into business processes. This is shown by the big difference in how respondents scored the competition and rivalry between traders in different markets.

4.8.2.4 Supply and Demand Relations in Markets. In Turkana, livestock marketing is a year-round activity, indicating the regularity of livestock business activities. The majority of livestock markets in Turkana are open daily, although the government is introducing market days, particularly for secondary markets, as a means of organizing livestock market activities and strengthening relations between supply and demand market forces, as presented in Roba et al. (2018).

The study also shows that although many livestock keepers in Turkana are still domesticating their livestock resources, those living near established towns and trading centers and closer to the main livestock market are incrementally diversifying their livestock production and trade activities. This is presented in Yuzaria and Rias (2017), where diversification of businesses and innovations are good ways to improve the food and income security of an area.

Diversification of agricultural initiatives in pastoral areas is a recipe for addressing the persistent problem of insufficient access to food, income, and nutrition security, which are basic requirements for the populations in Turkana. According to the study, a lack of knowledge on the technicalities of livestock production and marketing impedes the

development of livestock-based products, the management of product supply chains, limited capacities for market capitalization, and the monetization of potential consumers.

The results of the study indicate that there are significant differences between respondent scores regarding the use of parameters evaluated for supply and demand functions. It helps people understand supply and demand relationships and how they affect markets and stakeholders on different levels.

The role of policymakers in defining the scope of supply and demand functions for various industries is highlighted but was not clearly understood by the majority of study respondents. In a similar way, Deraux et al. (2019) point out how important it is for market regulatory frameworks to set up clear relationships between supply and demand.

It is said in Bandewar et al. (2017) that market management frameworks build practical marketing approaches and strengthen market organization systems. This is in addition to the fact that regulatory frameworks create harmony between supply and demand in any market category for the sake of efficiency of market operations, relations between buyers and sellers, and the delight of product consumers.

4.8.2.5 Management of Supply and Demand Functions in Livestock Markets.

The research has established that the market supply of livestock is substantial and can meet demand requirements. This indicates the capacity of Turkana County to produce livestock capable of satisfying the needs of local markets as well as contributing to the needs of external markets and the national GDP (Berihun, 2017). But most livestock producers and traders don't understand the demand side of markets. This jeopardizes livestock production supply and commercialization.

Since traders do not fully comprehend consumer needs, they are excessively focused on economic returns while ignoring consumer satisfaction. From the traders' points of view on the livestock trade, it is clear that livestock producers felt like they were treated unfairly and that the real value of their livestock was not taken into account. It is also clear that primary traders felt like secondary market traders dominated them, even in markets that were under their control.

The livestock market in the Kakuma refugee camp and the Kalobeyei Integrated Settlement contributes to the current problem of high prices in the market. Analysis of the prices set by the Kakuma market for livestock reveals that it is incapable of supplying other local markets in Turkana County. Because the prices of livestock on the Kakuma market are so high, buyers from secondary and tertiary markets do not come to purchase livestock.

Due to a lack of offtakes that can encourage aggregation, sales, and a continuous supply of market-weight stocks from production zones, the livestock trade in the county stagnates due to a lack of trade with tertiary traders from terminal markets. Considering the impact of limited capital, the majority of traders are forced to deal in lower-quality

livestock with low returns. This means that the profits made don't lead to business growth, value addition, or a wider range of business activities.

It is also evident that the complexities surrounding supply and demand forces hamper market performance and operations. The study reveals that the livestock dealers in Turkana lack the required capacity to defend their markets and strive to secure new markets in other potential markets in the region.

The ability to present market successes and challenges and to propose strategic actions to mitigate market challenges demonstrates that traders are pragmatic and willing to convert market weaknesses into business opportunities. The fact that the traders are excited about the livestock trade shows that the livestock producers are able to turn their traditional and cultural goals for raising livestock into business opportunities.

4.8.2.6 Organization of Livestock Marketing Activities. The study captured the need for market days in all of the surveyed markets, including the opinions of tertiary respondents, i.e., participants from government and civil society organizations. More analysis shows that there needs to be a link between the number of livestock and the level of aggregation.

There is a chance that unbought livestock will be for sale on the market tomorrow, which will add to the costs that livestock producers and traders are already paying. Abebe et al. (2018) and Zalewska-Kurek et al. (2016) say that market days can be successful if opportunities for livestock offtakes are looked into to reduce the number of livestock to a manageable level while also increasing market sales, revenue, and profits.

Consumers in the meat value chain believe that the prices set by butchers are too high, meaning that fewer consumers will be able to afford meat products while the majority lack access to animal products and nutritional requirements. This is also a risky situation for butchers, whose business investments could be lost if the demand for meat products drops a lot because prices keep going up.

4.8.2.7 Theory and Livestock Production and Marketing. Even though there is no theory behind marketing livestock in Turkana, being able to structure market operations by strengthening relationships between stakeholders and defining the market activities and engagements needed will improve the performance of livestock markets and speed up the effect of competition on market performance.

Disorganized operations and the non-functionality of numerous markets in pastoral areas are blamed on a lack of competition management frameworks. However, the study emphasizes the role of competition in the structuring and determination of products and market access. This means that competition creates opportunities for entrepreneurs and businesses to invent new ideas, products, and high-yielding business strategies.

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The elements assessed for theory and model integration in livestock marketing could not be ascertained by the study's respondents, as models do not appear to be utilized in livestock marketing in Turkana County. However, theories and models are

prerequisites in any business setting. Since all business contexts and markets are imperfect, integrative theory and well-crafted business endeavors in the market will encourage the transformation of traditional business systems into competitive market approaches. Simonet et al. (2020) say that one risk of using traditional business strategies is that they might not work with the needs and processes of the modern market.

Using the case of Turkana and the lack of use of business models to inform livestock trade and operations, market development and management frameworks aid in the evaluation of crucial market functionality and access factors. Diwara et al. (2021) and Awan et al. (2018) back up this conclusion by showing that theory-based marketing of products and marketing management systems lead to the best gains for businesses, even in environments with a lot of competition.

According to Abebe et al. (2018) and Simonet et al. (2020), theories and models facilitate the alignment of business prospects with the needs of stakeholders. Because of this, consumers are happy, especially if economies of scale are used, which increases the quality and quantity of products while lowering prices, as shown in Yuzaria and Rias (2017).

The study found that the marketing mix of Turkana is undefined and needs to be understood in terms of livestock production, market performance, and the socioeconomic demands of livestock keepers and product consumers. Pastoralists are the only producers of livestock, and they trade heavily in both primary and secondary markets. As part of figuring out the product part of the marketing mix, it would be important to find out what livestock products customers want and if they meet their needs. This demonstrates

the lack of a business model that facilitates the pricing of livestock commodities in response to abundance and scarcity scenarios.

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It is also important to find out what qualities of livestock products make consumers happy and what basic needs of consumers are being met. Who and where consumers will access and utilize the offered livestock products, as well as the management of the consumer experience, must be addressed. Where do prospective consumers shop? What ICT infrastructure are they utilizing for communication and commerce? What is their social media usage? These are all essential areas of inquiry. The information will help identify both the local and international markets for animal resources and the places where they are used.

Price is crucial to commodity exchange, consumer affordability, and market consumption. In order to comprehend pricing-related issues, consider the buyer's value of the product or service, how the price compares to competitors, and whether the product or service has established price points in the area. When it comes to promotion, it's important to think about how the product will reach the target audience, when and where

marketing messages will be spread so that the target audience can see them, how the competition in the target market promotes the product, and how that affects the way livestock businesses compete with each other.

Based on the numerous advantages livestock production and marketing in Turkana offer, it is possible to develop a viable marketing mix. It is very important to understand the context of the livestock industry, the opportunities for market expansion, the challenges, and the possible solutions and systems in which aspects of product, price, place, and promotion (4 Ps) can be delivered in a more organized livestock marketing system.

4.9 Synthesis of Research Results

As a continuation of the evaluation of the study results, the section on the synthesis of study results shows the characteristics of the findings of the included research studies, the relationship between studies and patterns explored, the applicability of the research evidence generated, the meta-analysis and robustness of the study results, the strengths and weaknesses of the research evidence, and the gaps in the research evidence and plans for the future.

In this section, the research data pertaining to the study's objectives, research questions, and research outcomes are synthesized into strategic insights to inform policy, improve theory and practice, and expedite the adoption and adaptation of innovations that are crucial for scaling up livestock production, trade, and industry. The levels of study result synthesis are presented in the subsequent sub-sections.

4.9.1 Characteristics and Findings of Included Studies

A general summary of the characteristics and results of the included studies shows that livestock production in different production contexts faces many production, health, marketing, environmental, and natural resource challenges, as well as non-progressive cultural beliefs and practices of livestock keeping communities, limited market access opportunities, political factors, and limited policy support, among other things.

The literature reviewed for the purposes of this study reveals characteristics of various production levels and systems, as well as the widespread nature of the obstacles to livestock sector development in all production contexts. Publications about the livestock economy show that there are important links between livestock production (making animals and products) and marketing.

Under the market economy and the potential to commercialize the livestock economy, the disparity in livestock production results from the use of culture as the basis for maintaining and utilizing livestock resources. Numerous documents reviewed strongly indicate this production intention, which is commonly observed in pastoral areas and pastoral communities in numerous arid regions. This is why market economies and traditional ways of selling livestock are taking the place of barter trading systems.

This mode of production, coupled with low levels of literacy and exposure to market operations for elite merchants, given the limitations identified in pastoral areas, tends to exploit producers and fellow low-capital traders and polarize market operations to their benefit. Literature calls these kinds of actions "opportunistic," "deliberate," and "harmful" to the efforts of the government, civil society, and businesses to make livestock commercialization a strong part of the pastoral economy.

4.9.2 Relationship between Studies and Patterns Explored

Numerous studies focusing on livestock production and marketing in drylands exhibit a high degree of overlap in the areas of study. The challenges of livestock production and marketing have remained complex phenomena, requiring long-term research. The fact that some of the study's goals are the same shows that there is a broader desire to deal with the problems that affect livestock production and value chain development.

Other similarities depicted in the study objectives of numerous livestock-based studies include the vitality of livestock production resources as a measure for achieving the quality required by markets, the functionality of markets to enable consumption of volumes and quality of livestock and products produced, and the establishment of a level

playing field in markets by enhancing competition and regulatory systems of trade in markets.

Supporting livestock stakeholders, especially livestock producers, traders, and vendors, building up their resources and skills, and getting more people to buy their products would lead to more frequent and efficient production, more ways to make money, and a more diverse pastoral economy.

To facilitate robust livestock protection and marketing initiatives, the majority of the literature sources reviewed contain information on livestock policy development and research as a means of generating knowledge, innovations, and capacities for leveraging livestock resources and populations. Studies of livestock-based dryland production systems reveal the homogeneity of production systems and human sociology. Livestock keepers have close relationships with their animals, and keeping animals is a big part of how they make a living.

Drylands are also homogeneous in the sense that harsh environments, including the severity of obstacles affecting livestock development, are remarkably similar. Several studies show that drylands are being pushed to the side because their governments think they are less useful to their economies.

Drylands have also exhibited heterogeneity as a result of the diversity of knowledge created by partners targeting the well-being of livestock-dependent communities, the improved use of available ecosystems, and the incorporation of pastoral lands into the development agenda. Because of this diversity, there are chances to improve the livestock industry by turning problems into opportunities and skills, which gives hope for making the most of the livestock economy through trade and investment.

4.9.3 Applicability of Research Evidence Generated

The research study and previous studies conducted in numerous pastoral regions on the themes of livestock production and marketing are closely related. The findings, recommendations, and action areas of the study are intricately intertwined with innovation and the use of technology to increase the application of knowledge and practices in the targeted areas and populations. Using the experiences of countries like Ethiopia, Botswana, and Angola, accelerated systems of managing the livestock sector show how good governance of the livestock sector can improve the economy of pastoral areas and the welfare of livestock keepers.

The body of evidence built from this research and in relation to past studies presents diverse solutions to address critical areas of livestock marketing. Based on this study and other studies that were looked at, it was found that high levels of illiteracy, a lack of technological know-how, a lack of capital for merchants, and a failure to include youth and women in the livestock development agenda are major problems that make it hard for livestock keepers to produce and keep their livestock resources productive.

Similar to other studies, the research identifies extreme competition in many pastoral areas. According to the findings of this study, competitive rivalry is detrimental to producers' efforts to invest in the productivity of their livestock in order to supply markets, affect prices, cause animals to wait longer in markets before being sold, jeopardize the capital resources of merchandise, and impede the functionality of markets and the diversification of livelihoods in pastoral areas.

4.9.4 Meta-analysis and Robustness of Study Results

The quantitative study's results analysis is expected to reveal the significance of the effects of competitive rivalry on markets in pastoral areas. The results of the qualitative study and many other studies from the past that looked at the risks of competitive practices also showed that this was important.

Given that the majority of livestock traders and stakeholders in drylands are illiterate and unfamiliar with sound market systems and operations, the competition factor is a technical aspect. Competitive rivalry is causing a mismatch between the market forces of supply and demand, which is confusing the flow of livestock resources to the market, driving up prices, and making relationships between stakeholders worse.

Market disorganization, traders outcompeting one another, and a lack of consumer satisfaction due to the lowered affordability of livestock products are the key outcomes of extreme competition, according to the quantitative and qualitative findings of this study and selected literature. Based on the results of the study and all of the other studies that were looked at, livestock trade is done using traditional methods in which prices are negotiated based on will.

The application of theory through business models and strategies has not yet been implemented, despite the growing number of conventional markets with modernized business plans. No business models are utilized in the marketing of livestock in Turkana. This is the reason why markets in many drylands are inefficient, except in places where governments value and invest in the development of livestock and pastoralists, such as Somalia and the north-eastern counties of Kenya.

4.9.5 Strengths and Weaknesses of the Research Evidence

Despite the fact that the vast majority of research studies conducted in drylands demonstrate the relevance of knowledge to pastoral areas and populations, many of the proposed recommendations and areas of future research have not been implemented due to a lack of commitment and resources. Even though documented gaps and problems in livestock production and marketing are real and important, most countries don't do much to fix them through research or emergency and development projects that change the sector.

Little has been done in Turkana to establish a formalized market economy to support the production efforts and business prospects of pastoralists. The failure of the Lomidat slaughterhouse, which was intended to serve as a tertiary market for Turkana, Kenya, South Sudan, and Uganda, illustrates the inability to expand and diversify livestock businesses through mass sales, slaughters, processing, and distribution of value chains to a larger market. Since the results of the studies on the marketing of livestock in many different areas are real, can be seen, and are strongly felt by the vast majority of stakeholders, including livestock producers, there is no chance that the studies are biased or don't show the truth.

4.9.6 Gaps in the Evidence and Subsequent Plans

Despite the overwhelming findings and subsequent actions following each study of pastoral livelihoods, the inapplicability of recommendations and actions is based on the disproportional relationship between the phenomena and the capacity to address them. Most of the things that scientific studies suggest need a lot of money and time to set up and keep going.

There are few successful examples of actions and investments aimed at developing systems and interventions to address the identified needs and priorities. The pastoral population is large and dispersed sparsely. Pastoral areas are where livestock are raised, and the requirements of various livestock species can be demanding on the government and livestock owners. But the solutions suggested in this study are the same as those suggested in other studies.

To put the study's recommendations and action areas into place, resources will need to be gathered and the skills of livestock keepers, merchants, and duty-bearers will need to be built up. This will make it easier to use research results to solve the problems found in the study.

Unresearched areas must be prioritized so that livestock development can be enhanced through theory, practice, and innovation. In light of the current state of the economy, the fact that there are fewer and fewer things that can be used to raise livestock, and the fact that there are fewer and fewer financial resources, research is still very important for speeding up the development of pastoral areas and improving the social and economic well-being of people who depend on livestock.

CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

5.1 Implications

The research focused on four strategic areas: (i) socioeconomic characteristics of traders; (ii) competition and rivalry in markets; (iii) supply and demand relationships in livestock markets; and (iv) integration of business strategies and models in livestock marketing in pastoral areas.

Regarding the conceptual study framework and variables selected for the investigation of the study objectives, the results of the study revealed numerous strengths, weaknesses, and threats to the livestock sector in pastoral areas, as well as the viability of sector growth opportunities. The results of this study can affect the theory, policy, and practice of governments, civil society groups, business groups, and people who depend on livestock, as explained below.

5.1.1 Livestock Production and Productivity

Multiple factors inhibit livestock production in pastoral regions. The severity of each factor hurts the livestock sector, making it more likely that people who depend on livestock will not have enough food, money, or nutrition.

Such obstacles continue to be the subject of nuanced political and policy debates between livestock-dependent communities and their governments and lobbyists, as they exacerbate rural poverty and underdevelopment. Highly regulated livestock movements and trade in pastoral areas keep adding to the backlog of animals that are ready for the market in production zones. This makes it harder for traditional subsistence livestock farmers to sell their animals on the market.

By establishing connections between local markets, traders, and livestock production zones, the study's findings will be used to justify the need for market capitalization. Local livestock breeds have lost genetic strength due to inbreeding and the transfer of substandard genes. The findings of this study will allow stakeholders to reconsider livestock breeds, productivity, competitiveness, and resilience, as well as the adaptability of potential breeds to drylands, as the traditional livestock breeding system is becoming detrimental to livestock genetic value and productivity. This goal can be reached by looking into ways to use modern technologies for breeding and caring for livestock.

The study's findings indicate that there are insufficient extension personnel and services in pastoral areas; insufficient research on essential aspects of livestock and pastoral livelihoods; insufficient training and exposure for livestock farmers; and a lack of contingency plans to mitigate and manage climate change shocks. To look into businesses based on livestock, the study will focus on the need for more human labor and capacity. This will be done through training, thematic research projects, and giving rural producer groups and cooperatives more power.

According to livestock development opportunities presented by Ado et al. (2019) and Asante et al. (2016), the study will be utilized as a lobbying tool for the strategic positioning of livestock production resources, such as water points, holding grounds, livestock immunization facilities, sale yards, and value chain consumption points, and for the equitable distribution of livestock production resources (Abebe et al., 2018). The study says that one of the barriers to market access is not having enough access to livestock and products made from livestock.

As suggested by Awan et al. (2018), the study will provide evidence emphasizing the importance of minimizing the trekking of livestock and traders to the markets by improving road networks and utilizing better equipment (vehicles) to access competitive tertiary markets. The information asymmetry and ignorance of livestock traders influence the management of market operations.

According to Farmer et al. (2016), a lack of information impacts the pricing and coordination of livestock marketing. The study will recommend the incorporation of information sharing as a pillar of marketing strategies for livestock. (Wanyoike et al., 2018; Roba et al., 2019) say that sharing information will help manage pastoral mobility and lessen the risks and unknowns that come with it.

In addition, the study will facilitate the adoption, adaptation, value addition, and replication of essential practices and technologies for producing high-yielding, profitable, and competitive livestock and livestock products for potential markets. In addition, the findings can help determine the relationship between livestock populations and land carrying capacities, fodder production requirements, and the establishment of feedlots; support the establishment of livestock holding grounds; encourage organized livestock grazing; and demonstrate the need for access to capital resources.

Insufficient research is cited as the reason for the persistence of livestock production obstacles in the study's conclusion. So, the possible future research areas will increase knowledge and skills, change attitudes, and improve the way decisions are made to make dryland livestock development policy work better (Dido, 2019; Carron et al., 2017).

5.1.2 Livestock Marketing and Market Performance

Pastoral regions have remained crucial for livestock production to meet the rising domestic and global demand for livestock and livestock products (Nyariki and Amwata, 2019; Dumont et al., 2015). Because of this, the study will be used to show how important it is for pastoral areas to raise and sell livestock.

The significance of identified knowledge and perception gaps among livestock producers, traders, and consumers must be addressed through the development of appropriate capacity-building strategies. The fact that the majority of pastoralists own large herds of livestock can be used to motivate and increase livestock sales. As Motta et al. (2018) and Molia et al. (2016) point out, this study will help with efforts to change pastoralists' long-standing focus on subsistence, which will solve the problem of a low cash economy in pastoral areas.

The study will also contribute to the ongoing political capital advocacy to address issues of marginalization of pastoral areas, protect the pastoral economy, improve the functionality of livestock markets, and facilitate enterprise diversification by enhancing access to capital (Sikamwaya & Guiyu, 2020; Lorato et al., 2015). The study's results show that trader cartels make livestock markets more competitive and crowded.

According to Manyeki et al. (2021), Abay et al. (2018), and Evans (2017), the findings of the study will contribute to the structuring of livestock trading and trader activities across market jurisdictions. Supportive policy changes will cut down on unfair market competition. This will lead to healthy, fair trading in which everyone finds their place and makes gains that are proportional to what they invest.

Traders' enhanced understanding of livestock marketing and relationship management will result in increased profits, business diversification, and competitiveness (Anno & Pjero, 2021; Fakudze & Machethe, 2015). The study will help plan and decide on the strategic focus of future livestock market surveys. It will also help find out how much and what kinds of livestock are traded along different livestock trade corridors and routes, as well as key livestock-based actors and cross-border livestock businesses (Berihun, 2017).

The results of this study will help governments and civil society organizations make better livestock marketing policies (Bandewar et al., 2017). These policies are needed to make it easier for businesses and projects to market livestock, to keep competition in check, to encourage inclusion, and to protect the investments of stakeholders.

5.1.3 Business Models and Competition

5.1.3.1 Implications for the Market's Competitive Forces. The study determined that the subsector components of livestock production and marketing in the context of drylands had not been studied in depth. So, the research will lead to a better understanding of how market and non-market factors affect each other. This will make it easier to handle the competition that is at the heart of every livestock market (Berhe et al., 2016; Silanikove and Koluman, 2015).

Since no market is perfect, the study provides baseline data for further analysis and planning of livestock production and marketing. Stephen et al. (2018) say that livestock marketing organizations and business owners will be able to understand economies of scale, cost advantages, market barrier management, supplier power

effects, and how they affect competition, innovative marketing systems, research, and market influence.

To develop livestock value chains for diverse markets and customers, the study applies Porter's value chain theory, which states that combining primary and secondary value chain activities will enable livestock companies to compete and profit locally and globally. The research will help come up with local, efficient, and long-lasting ways to sell livestock. It will also make it possible to evaluate market dysfunction and the risks posed by intense competition in a changing business environment (Eltholth et al., 2015; Enahoro et al., 2019).

5.1.3.2 Implications for Competitiveness in other Market Jurisdictions. The study includes key elements of Porter's diamond model, which defines the competitiveness of firm locations and the profitability of national and regional economies. According to Davis and Ellis (2000), the study's findings will establish a connection between the livestock industry's future and customer demand as well as the industry's growth objective. The study will have an innovative effect on marketing systems, research, and product development to improve cooperative problem solving and coordination and maximize synergies and complementarities between products and stakeholders.

According to Dido (2019), the objective of constant scanning of corporate environments is to maximize internal and external company opportunities while minimizing risk and danger. Facilitating the monitoring and evaluation of microenvironmental business factors is crucial to the performance of the livestock sector in drylands (Cheteni & Makhele, 2019; Gebremedhin et al., 2015). As a result of the research, it will be possible to find out what happens when a business enters a new market and to make it easier for goods and services related to livestock to move between markets.

5.1.3.3 Study Results Corresponding with the Research Problem. Since the factors impeding access to livestock markets in pastoral areas have been precisely identified, the research results are highly relevant to the issue under investigation. We look at and talk about the problems caused by inefficient livestock production and marketing, a lot of competition and rivalry, an imbalance between supply and demand forces, and the effects of non-market factors.

The results of the study reveal the scarcity of production factors, the limited capital available to merchants, and the impediments to the competitive and comparative advantages of local markets and merchants competing successfully in local, national, and regional markets (Ayele, 2019; Berihun, 2017). The study's results show that there is competitive rivalry and that it has a big effect on access to markets for livestock and on opportunities in pastoral areas.

5.1.3.4 Potential Limitations and Conflicting Results. There were no instances in which study results contradicted those of previous studies that covered study objectives. This indicates that in the pastoral region of Turkana, livestock production, marketing, and other concerns of the livestock sector are real, observable, and interpretable, and affect a large number of stakeholders. So that a thorough analysis of all the study variables could be done, the study's scope was well-defined based on the research problem and the factors that went into it.

Due to the similarities between the Turkana pastoral area and other drylands in Kenya, the fact that the study's results can be used in a larger area, and the fact that there are many pastoral communities and governmental and civil society institutions in the area, the study's results could help the economy and the social and economic well-being of

entrepreneurs and communities that depend on livestock in several drylands with similar climates. The investigation could not delve further into animal breeding, nutrition, conflict resolution, or international trade due to the study's objectives. To find good answers to these kinds of research questions, you need to do investigations that are both focused and strategic.

5.1.3.5 The study Building on the Existing Literature. This study confirms and expands upon previous literature resources on pastoralism, livestock production and marketing, and the functioning of various livestock markets across a spectrum of drylands, pastoral regions, and associated developments. Annotations and articles chosen for this research point out other parts of the study that are in line with what is already known (Omollo et al., 2018; Sala et al., 2020; Egeru et al., 2015; Elhadi et al., 2015). Omollo et al. (2018) and Kima et al. (2015) Insights contained in these publications suggest important steps for improving resilience, risk management, and relationships between stakeholders in livestock marketing activities in northern Kenya.

As elaborated by Adem (2019) and Szopinski et al. (2019), the studies also propose methods for managing domestic and international livestock marketing at cross-border livestock marketing corridors. The study also uses the results of a previous study (Staal, 2015) on livestock marketing and supply chain management in pastoral areas as well as the study's suggestions for modernizing livestock production and marketing in order to help people who are already in a bad position. Growing livestock production and trade in pastoral areas show that more research, consolidation of activities to strengthen the livestock sector, and commitment of resources are needed to reach livestock development goals in the drylands.

5.2 Recommendations for Application

5.2.1 Recommendations for Livestock Producers and Traders' Demographics

The Turkana's primary socioeconomic activity is livestock production. People of middle age are the only ones who see the livestock trade as a way to make money. Most people keep livestock for subsistence and cultural reasons.

There is a need to invest in youth empowerment programs to help them get involved in livestock production and marketing, develop their economic potential, and help them sell for themselves in a sustainable way. According to Kenya's 2010 Constitution, youth are people between the ages of 18 and 34 (KNBS Census, 2019). This makes up 25% of Kenya's population.

According to the survey, 75% of livestock dealers in Turkana County are illiterate, meaning they cannot read or write. In order to reduce Turkana's high illiteracy rate, pastoralist communities should be encouraged to send their children to school so that those who may pursue livestock husbandry and related industries in the future are literate. Also, adult education should be made available so that people who raise and sell livestock can learn to read and write.

The literacy project will make it easier for people to learn from training packages, communicate and share information, build and keep relationships with stakeholders, and make it easier to make, use, and manage business records. According to Diawara et al. (2021), Ryschawy et al. (2017), and Awan et al. (2018), trader illiteracy is a major threat to the investments, performance, profitability, and competitiveness of traders' companies in their home markets. Also, not being able to read or write leaves blind spots, which

makes it hard for the livestock industry to put new strategies and procedures into place and change old ones.

Although livestock keepers constitute the majority of livestock dealers in Turkana County, it is vital to empower and encourage non-livestock keepers to engage in livestock trading. This category of trader has industry-specific business experience. Omollo et al. (2018) and Kima et al. (2015) say that non-livestock business entrepreneurs will make pastoralists' incomes more diverse, use their knowledge and experience to improve the performance of livestock trade, and be able to put more money into livestock businesses.

The transformation of non-pastoral entrepreneurs' knowledge (what they know), skills (how they do things), and beliefs (what they hold) through education will make local livestock dealers more resilient, productive, and competitive. The livestock trade is a clearly male-dominated industry in Turkana County. Not only in terms of production but also in terms of business and innovation, women should be encouraged to participate in livestock-based enterprises. As suggested by Kihui et al. (2017), Elhadi et al. (2015), and Mayanja et al. (2015), the ability of women to take part in livestock development should be evaluated and incorporated into policies and strategies.

As a result of campaigns to help women become entrepreneurs and improve their access to financial services, women will become livestock traders, butchers, and participants in different livestock-based value chain businesses. They will also receive contract business opportunities as well as affirmative action.

5.2.2 Recommendations for Livestock Production and Market Access

According to the study, livestock production and marketing in pastoral regions are not progressive. This problem is caused by a lack of livestock, frequent and severe droughts, a lack of security, disease, a lack of knowledge and exposure among livestock keepers and merchants, a bad cash economy, and the inability of livestock markets to make money.

It is necessary to implement, restore, and manage strategic investments in land, water, forage, knowledge, skills, and labor in order to improve performance. Also, reducing the effects of drought, insecurity, and disease will make livestock resources healthier and more productive, as well as make livestock products healthier and more marketable (Stall, 2015; Ihle, 2017).

Efforts to eradicate livestock diseases will rid livestock production zones of disease, allowing for greater commercialization of livestock, diversification of livelihoods, and competitiveness of various firms along the livestock value chain. All riverine habitats, highland areas comprised of hills and ranges, and micro-catchments with adequate livestock production factors should be utilized as wet- or dry-season grazing areas. Producer groups can use the fertile flood plains in Turkana County and the pastoral areas nearby to grow fodder and seeds.

Devaux et al. (2018) and Wirtx and Daiser (2017) say that this kind of resource management will make sure that livestock is produced and sold throughout the whole season while minimizing shocks caused by reducing key factors in livestock production and risks caused by an insufficient livestock-based investment appraisal.

As the study results illustrate, marketing operations for livestock are generally beneficial for livestock producers, traders, and consumers. Sefa (2017) and Givens (2018) highlighted the significance of implementing animal production operations in livestock-producing regions with established links to traders and markets. Also, by making it easier to get to markets, livestock farmers and dealers will be able to make money from them, which will help ensure that their families and communities have enough food, money, and nutrition.

According to Spaniol et al. (2019) and Banhazi et al. (2015), failure to reap the benefits of livestock production and marketing efforts is detrimental to the welfare of livestock keepers, entrepreneurs, and consumers of livestock products. In pastoral regions, inbreeding and poor breeding selection are weakening indigenous breeds. The structure of breeding systems and the introduction of superior breeds will help mitigate the production scenario. Low livestock productivity causes problems like a lack of quantity and quality of animal products, lower market weights, and low prices. This new idea will help solve these problems.

Training, exposure, and application of research outcomes will enable livestock keepers to recognize the value of superior breeds for their livestock resource productivity, thereby facilitating the successful introduction of new breeds into pastoral areas. Ebel et al. (2016) and Adem (2019) say that the availability of production variables will help improve the performance of new livestock breeds and give them the tools they need.

The availability of capital resources will facilitate the adaptation of new breeds to rural environments. Expansion of livestock breeding and enhancement of activities in pastoral regions would increase livestock production and marketing. The national

government, the Turkana County government, and civil society organizations should standardize research on the fundamental aspects of livestock production and marketing. This research project will come up with information that will help the livestock sector do better.

Through research, the identified limitations on subsector performance will be investigated, with subsequent recommendations and actions. According to Diawara et al. (2021) and Abdu et al. (2016), livestock stakeholders make bad strategic decisions because they don't know enough about markets and operations.

This puts their companies' futures and investments at risk. The Turkana County Government is prioritizing the identification and mapping of livestock production areas to protect them from the encroachment of growing urbanization, where trading centers, villages, and non-pastoral business investments tend to decline, in collaboration with civil society and corporate bodies.

According to Awan et al. (2018) and Egeru et al. (2015), shrinking rangelands and livestock production areas lead to a decrease in the scale of livestock production activities and community wealth, resulting in an increase in poverty and compelling pastoral households to seek wage labor and non-pastoral livelihoods in urban settings. Sala et al. (2020) say that shrinking rangeland resources make pastoralists, their ways of life, and the environment more vulnerable in social, economic, cultural, political, and environmental ways.

Civil society organizations and pastoral communities can conduct a joint analysis of the climate change phenomenon to determine the severity of its effects on pastoralists' welfare, livelihoods, and natural resources. The ability of pastoralists to deal with climate

shocks and the effects of repeated droughts on livestock resources, ways of making a living, and the natural environment should be examined by the right people.

According to Ahmed et al. (2020) and Kihiu et al. (2017), the effects of climate change will continue to diminish livestock and environmental productivity, putting rural economies and ways of life in jeopardy. So, putting together, funding, and allocating resources, as well as putting government and community-based development and emergency plans into action, will help livestock stakeholders and communities reduce the effects of disaster risks and hazards and manage them.

The livestock production and marketing governing bodies must improve access to information for livestock producers, traders, entrepreneurs, and consumers through training, education, and exposure. Additionally, improve access to markets by enhancing road conditions and lowering the cost of transporting livestock and livestock products. Livestock markets are not very good because there are things that make it hard to get to them, and people cannot trade with them.

A transparent marketing system with transferable livestock and value chain strategies is necessary to improve communication, pricing, and transportation, which Abebe et al. (2018) and Berhe et al. (2016) consider crucial for the long-term performance of markets. Brown et al. (2017); Ebel et al. (2016); and Kuratko et al. (2017) all say that improving stakeholder communication and the pricing and transportation of livestock will make raising and selling livestock in the drylands easier, more profitable, and more competitive in the long run.

Transport expenses impede the capacity of secondary livestock dealers to aggregate livestock acquisitions for tertiary or terminal markets. The situation reduces local merchants' competitiveness and threatens their operating capital and bargaining power. Roba et al. (2019) and Motta et al. (2018) say that letting local businesses compete in terminal markets increases economic returns and helps local traders find their place in national and regional markets.

The limited cash economy in pastoral areas makes it hard for the livestock industry to grow. To fix this problem, livestock stakeholders need to learn about the importance of the cash economy and other ways to store some of their wealth in cash instead of just livestock (Gebremedhin et al., 2015; Akinmoladun et al., 2019). Farmers and people who buy and sell livestock should be encouraged to open bank accounts to protect themselves.

Salewska-Kurek et al. (2016); Asante et al. (2021); and Karmeback et al. (2015) provide evidence that livestock businesses have improved the household resilience of their adopters. Because animal husbandry is the primary source of income for pastoral communities, households and business groups must be educated on the local and global money economies, as well as alternative business opportunities.

It is necessary to systematize markets and marketing activities and to foster stakeholder relationships. Livestock marketing systems should be free of corruption and unethical practices that benefit market participants disproportionately, thus fostering cartels, mistrust, and competition in markets (Awan et al., 2018; Omollo et al., 2018). Governments and civil society organizations can empower livestock traders and business owners to define the scope and size of the livestock trade in their communities. Even

though merchants know that pastoral areas have a lot of livestock, they cannot compare it to what the market needs right now.

When the livestock supply is compared to current domestic and foreign demand, surplus stock can be sold on other markets. It will strengthen the marketing strategy for livestock and increase the regional competitiveness of local merchants. Notable is the monopoly of wealthy traders over tertiary livestock markets. Using their financial resources, they may persuade local merchants to become their suppliers.

Local businesses will be less likely to enter and compete in foreign market domains if the business scenario plays out. To protect local markets from the threat of tertiary traders' takeover, stakeholders must address local traders' competitiveness-reducing business challenges. Make it easier for local merchants to get information and money, and create environments that are good for business so they can work with other merchants and entrepreneurs in different markets.

5.2.3 Recommendations for Traders' Competition and Rivalry Management

Institutions governing livestock production and marketing must advocate for the broader implementation of viable business models appropriate for specific market segments. This will enable market participants to manage competition and reduce rivalry in their respective markets. Anno and Pjero (2021) and Omollo et al. (2018) say that market competition and rivalry can be handled by combining and evaluating the effects of market and non-market forces on business operations.

Identifying and evaluating the threat posed by new entrants, suppliers, and buyers' bargaining power, in addition to the threat posed by substitute products, will allow each livestock market and its stakeholders to manage daily marketing operations and foster healthy stakeholder relationships. The government and key market players must make sure that producers, traders, and consumers can get information about the prices of livestock and products made from livestock.

When changes in supply and demand occur, stakeholders are involved in determining livestock and livestock prices, with justifications made available to all. Ayele (2019) and Wlhadi et al. (2015) say that efficient commodity pricing is important for the commercialization of livestock farming and the long-term performance of the market.

As suggested by Silanikove and Koluman (2015) and Egeru et al. (2015), promoting healthy competition in markets by avoiding conflicts of interest and rivalry among stakeholders and ensuring that marketing strategies can regulate competition in livestock markets through improved pricing and information sharing.

If market competition and regulatory frameworks are developed and enforced adequately, and if market stakeholders regulate the meat value chain prices imposed by butchers and other consumption outlets, then reasonable pricing and information sharing can be maintained. To make livestock and livestock products affordable and fair, it is also important to know how much they cost to raise, sell, transport, and tax.

The affordability of livestock and livestock prices will increase livestock sales, increase revenue, and sustain livestock businesses for the duration of the season. Bocken et al. (2015) and Wirtz et al. (2016) recommend that households and consumers as a whole have sustainable access to meat products and meet dietary needs. This measure will also make it easier for consumers and households to get meat products and meet their nutritional needs.

5.2.4 Recommendations for Supply and Demand Relations in Markets

Throughout the season, the government of Turkana County must encourage livestock marketing in all market categories. According to what Abebe et al. (2018) found, this means that communities, households, and entrepreneurs who depend on livestock will keep getting money to run their businesses and take care of their families as long as they have access to markets. The government works with businesses that help shepherds make a living in the county to set up market days for secondary and cross-border markets. This makes it easier for people to gather their animals for tertiary markets.

Tertiary traders must amass sufficient capital and transport capabilities to ensure livestock offtakes and trader competitiveness in external markets. As an ethical measure, the livestock supply to markets must be structured so that each market participant can operate in their respective market while maintaining connections to other traders and markets as necessary. Roba et al. (2018) and FAO et al. (2020) say that this kind of trading arrangement will cut down on trading system breaches and unneeded competition and rivalry among market participants.

5.2.5 Recommendations for Theory Application

Governments and research institutions should encourage the use of theories and models in livestock marketing, boost marketing innovation, encourage entrepreneurs and businesses to come up with new ideas and products, use high-yielding business strategies, and improve the performance of livestock markets and traders in pastoral regions.

In the context of drylands, the core business models that need to be included in the livestock business framework are (i) the organized livestock marketing model, (ii) the Livestock Marketing Associations (LMAs) and co-management model, (iii) the meat and livestock assembly model, and (iv) the management of sale yards model as it has been formulated and proposed for use. These models must be used over and over again for the sustainable marketing and management of livestock markets in the region.

For stakeholders to ensure regular management of livestock production and marketing activities for the purposes of satisfying the market, continuous assessment of political, economic, social, technological, legal, and environmental factors (using the PESTLE analysis) is essential. People in charge of producing and selling livestock must encourage people in the livestock business to use knowledge management systems and learn.

According to Abebe et al. (2018) and Abdu et al. (2016), incorporating market economy elements into traditional livestock production and marketing strategies will strengthen the commercial business intent in pastoral areas. Integrating traditional market systems will make local traders more competitive on international markets, and using past

experience and research data will make business models for livestock sector initiatives work better.

The testing of the hypothesis revealed that the rivalry between traders has a significant effect on livestock production, marketing, competition, and supply and demand relationships in pastoral areas. Because Turkana traders do not use the appropriate business theories and models when raising and selling livestock, competition between them has little impact on theory and practice.

It is suggested that livestock production and marketing activities be based on pertinent theories and models to facilitate the contribution of theories to the robustness of livestock sectors' performance in pastoral areas. By regulating competition and getting rid of rivalry in markets, the livestock production and marketing parts of the livestock sector will be able to contribute to the social and economic transformation of pastoral areas through effective livestock production and marketing initiatives.

5.2.6 Recommendations for Future Research

Assess the current state of livestock production and husbandry practices in pastoral areas and recommend areas for improvement.

Multiple obstacles severely restrict livestock production in Kenya's arid regions, preventing livestock-dependent populations from realizing the full potential of their livestock and livelihoods. Similar challenges prevent the dryland livestock sector from significantly contributing to the rural and national gross domestic product. The factors contributing to livestock production difficulties and adversity can be identified through scientific research. But the most recent studies done in pastoral areas are not enough, are not specific enough, and don't cover all of the most important problems in livestock production.

As suggested by ILRI (2000) and Watson and van Binsbergen (2008), future research must find out what factors affect livestock production, such as pasture, water, knowledge and skills, and labor, so that livestock can be raised all year long, maps of livestock diseases can be made, and security hot spots in pastoral areas can be found. The results of these studies will be added to the current livestock development policy and implementation strategies, used to help make more policies and rules about livestock production, and used to show that livestock practices need to be changed.

Evaluate the viability of pastoral rangelands, ecosystems, and livelihoods based on the natural environment. Propose livestock-based businesses that can be successfully developed and maximized through the use of markets.

As in other pastoral regions of Kenya, Turkana County possesses a vast rangeland ecosystem with potential livestock production catchment areas, including mountains, hills, and ranges; forests; fertile valleys; flood plains; rivers; and riparian areas. But there hasn't been much research done on the things that are important for making the best use of these ecosystems and the pastoralists' homes, like the size of the land, its fertility, its biodiversity, its water, its potential as a pasture, its carrying capacity, the kinds of jobs that people can do in nature, their security, and the risks they face.

It is necessary to conduct research on the viability of rangeland ecosystems in order to produce healthy livestock resources for food, income, and nutrition security (Devaux et al., 2018; Thomsen, 2019). The government's proclamation of livestock production zones, the development of utilization and management plans for each pastoral production ecosystem, and the provision of government and civil society services to pastoralists in livestock production zones are among the anticipated study outcomes. Berihun (2017), Adem (2019), and Sala et al. (2020) all talk about similar areas that need more research.

Evaluate the benefits that value addition will bring to livestock production and marketing in pastoral areas, and transform the subsistence livestock farming of pastoralists into a market-oriented livestock economy.

In a number of pastoral regions of Kenya, livestock is produced using traditional and natural methods. Due to shifting production, market, and consumer demands, it is strongly recommended that livestock production systems add value. Few studies have been done on how well different breeds of livestock can adapt to different production environments.

A greater understanding of value addition will increase the viability of local and exotic breeds in various pastoral ecologies, thereby aligning livestock production systems and investments with the needs of the current market. Holm et al. (2019) and Bitetti (2019) say that the lack of value-added marketing strategies and plans shows that people have been keeping livestock and trading with traditional methods for a long time.

Future research should find out what methods and technologies are needed to make livestock resources that are high-yielding, profitable, and competitive. This will give pastoralists the niche and competitive edge they need in the growing consumer market.

Measuring the effect of market and non-market forces on pastoral areas' livestock marketing. Focus on supply and demand for internal market factors, and government policy on livestock trade for non-market forces.

Marketing and trading of livestock have existed in pastoral regions for many years. An analysis of the internal and external market environment is necessary for structured operations. To reach this goal, it is necessary to do research on market forces, such as the supply and demand for livestock and livestock products in each market category.

The variables of supply and demand to be determined include prices, the cost of production inputs, the cost of substitutes and complementary goods and services, and the income of livestock producers and traders. Ryschawy et al. (2017) say that focusing on non-market forces makes it clear how much internal and external factors of governance organize and correct livestock markets.

The anticipated research will delve deeper into the sociology, economic, political, social, and cultural aspects of rural areas that are crucial to the effectiveness and efficiency of livestock-based investments. The government's control over fiscal and

monetary policies, as well as how interest rates and taxes are handled, must be used to figure out the internal and external business environments.

Roba et al. (2019) suggest examining international transactions to illustrate the flow of funds and resources across countries and the importance of export and foreign policy on livestock trade, given the international nature of livestock trade. Since supply and demand are based on what stakeholders and governments think and expect, the research studies will record and analyze each stakeholder's thoughts and ideas about the future economic situation of the drylands, define the sentimental indicators, and find the trend directions for livestock and pastoral livelihoods.

Determine the applicability of corporate theories and models to dryland livestock production and marketing. Determine the opportunities for theory and practice to enhance the livestock sector's components.

This study examined the extent to which corporate theories and models are applied to the marketing of livestock in Turkana. Even though there are no formal frameworks for marketing livestock, the results show that models and frameworks need to be used to make the process more formal.

Future research must focus on how theory, practice, and business models can be used to define and control market competition and rivalry, map buyers and sellers and their bargaining power, map new entrants with entry and exit barriers and threats, and map substitute and complementary goods and services destined for different markets (Holm et al., 2019; Yakasai, 2019).

The development of competitive livestock value chains is indispensable for creating customer value. The proposed research would establish a generic value chain for the livestock sector, illustrating primary and supporting activities in production, transportation, and marketing and ensuring their interconnection. Also, more research needs to be done to figure out how the value chain theory can be used to promote and scale up better livestock value chain technologies in a way that is sustainable, as presented in Bitetti (2019) and Hoveskog et al. (2018).

Porter's theory of competitive advantage would help define the competitive scope of livestock production and marketing in pastoral regions. Future research must figure out how the model can be used to define the wide and narrow areas of livestock marketing, as well as cost leadership, cost focus, differentiation, and focused differentiation strategies.

Internal and external factors were examined while scanning business environments. Business environment scanning research must keep showing the livestock industry how political, economic, social-cultural, technological, legal, and environmental factors are changing as a result of changes in the business environment.

Business models will determine the competitive drivers, dimensions, and effects on businesses and the economy, as well as the best competitive position, the scale of networking, infrastructure development, market system implementation, and change management strategies.

Examine the factors influencing cross-border livestock trade, obstacles, and the effects of cross-border dimensions on livestock production and marketing in East African trade corridors and border regions.

In the East Africa region, a number of trade routes and corridors permit cross-border livestock trade. The formal border crossings facilitate the exchange of goods and services across international borders. But increasing paperwork and abuse at border crossings have forced livestock traders to use unofficial routes to get to cross-border markets (Abebe et al., 2018; Dido, 2019).

The majority of livestock dealers are illiterate, making compliance with complex cross-border trade regulations challenging. Cross-border trade continues to be hampered by the centralization of particular market procedures, the delay in the issuance of permits, the hostility of border officials, insecurity, raids, theft, and deaths on trade routes. Future research must focus on the underlying causes of these obstacles and propose solutions.

If solutions like making a Charter for cross-border trade, enforcing the East Africa Community trade protocol, and getting rid of corruption on the cross-border market work, there will be more opportunities for trading livestock and building partnerships.

It is also crucial for stakeholders to ensure the security of trade routes and corridors, access to markets, and support for non-discriminatory cross-border trade, thereby establishing order and maximizing the empowerment of livestock business stakeholders. According to Bocken et al. (2015) and Kuratko et al. (2017), good management of trade routes will make international trade a contributor to state economies via direct foreign investment and foreign exchange.

Determine the feasibility of transforming the current Livestock Marketing Associations (LMA) into Livestock Marketing Cooperatives (LMC) to enhance the operations and performance of local livestock markets.

The Livestock Marketing Association (LMA) is the only "semi-formal" organization designed to support the structure and organization of marketing activities in the markets. However, previous studies have identified the LMA model's performance inefficiencies, the most significant of which are its low entrepreneurial and resource mobilization capacities. A development area is the transformation of all LMAs into Livestock Marketing Cooperatives (LMC).

It is necessary to conduct research to demonstrate how the Livestock Marketing Cooperatives model will affect livestock marketing operations and performance in comparison to the LMA system. It is hoped that the new market governance model will: improve and protect local markets from being taken advantage of by external markets and entrepreneurs; promote market actor relationships and the flow of goods and services across markets; strengthen legal and regulatory frameworks; and make sure that livestock producers, traders, consumers, and business partners get better services.

The Livestock Marketing Co-management model enables the LMA to share responsibilities and resources and manage market incompatibilities. New studies can also determine how LMC can promote market ownership and the sustainability of marketing systems, facilitate better management of market facilities and operations, increase transparency and accountability, improve marketing infrastructure, and empower pastoralists to participate in livestock marketing. The proposed future studies would build on the frameworks for selling livestock that are already being made and strengthen local

institutions so that dynamic, ethical, competitive, and profitable systems for selling livestock can be set up.

Evaluate the performance of the Turkana Lomidat Slaughterhouse Cooperative and the socioeconomic and political factors that led to its closure.

Lomidat Slaughterhouse Enterprise is a Kenyan cooperative with its main office located in Lokichoggio, Turkana County. It was started in 2006 by the Africa Medical Research Foundation (AMREF) and Terra Nouva with money from the Italian government as a Corporate Social Responsibility (CSR) project to help local communities get the most out of livestock production opportunities.

The Lomidat project aimed to be a world-class facility for producing high-quality livestock value chains for local and international markets, promoting stringent quality assurance standards for meat value chain handling, and facilitating the timely delivery of livestock products to various consumer markets. Additionally, the enterprise aimed to facilitate livestock trade in Turkana and across the borders with Uganda, South Sudan, and Ethiopia, which were envisioned as potential tertiary markets. The business's performance went downhill for about two years after it started, until it closed in 2013.

In the future, studies will look at the company's strengths, weaknesses, opportunities, threats, and other internal and external factors that are important to its operations. This will help you figure out what was holding it back. In addition to examining market and non-market factors affecting the business, the Lomidat project studies will establish the marketing strategy's key elements with respect to location, promotion, pricing, cost plus, customer value, sales projections, and other financial projections. The

Turkana County livestock development agenda needs to aim at reviving the facility and making it a production and processing unit for meat value chains.

Examine the prevalent livestock diseases in pastoral areas that have a significant economic impact on livestock production, marketing, trade, and product consumption. Suggestions for contributing to the perception of pastoral areas as disease-free zones.

According to the research, prevalent livestock diseases like Helminthiasis, Contagious Pleuropneumonia for Goats and Livestock (CCPP & CBPP), Trypanomosis, Lumpy Skin Disease (LSD), Peste des Petits Ruminants (PPR), mange, and external parasites are prevalent in Turkana County. But the study could only look into the causes and economic effects of these diseases on the production and sale of livestock.

Relevant government agencies, civil society organizations, and individual scholars can conduct research to determine aspects of epidemiology, emergency disease management, public awareness, technological tools for preventing and diagnosing diseases, and quality assurance, as well as propose incentives for farmers and pastoralists to raise healthy and productive livestock resources. With more research, it will be possible to start cross-sectoral cooperation for service delivery and to coordinate the activities of livestock stakeholders.

Investigate the role of women and young people in livestock production, trade, and opportunities to contribute to the development of the livestock sector in drylands.

In pastoral areas, women and youth devote a considerable amount of time to livestock production, but they derive fewer benefits because, culturally, men own livestock resources. According to the study, the majority of livestock traders, particularly in

Turkana, are middle-aged men, with less than five percent being women. Staal (2015) and Ebel et al. (2016) say that more research needs to be done to find out what social, cultural, and economic opportunities are available to empower women and young people so that they can be more involved in livestock production and trade and get more out of it.

Important elements of the analysis include the equality of gender roles in livestock development and the identification of factors promoting gender discrimination and unequal access to capital resources. Additionally, research studies should investigate the effects of insecurity, rugged terrain, the politics of exclusion, traditional livestock keeping, and men's resource ownership. Even though men also have more chances to build their skills, it is important to find out what happens when people don't have access to new practices and technologies.

A lack of market opportunities, a lack of infrastructure, rigid cultural norms, and a widening gender gap impede women's and youth's participation in livestock development activities. Since women and young people are not a priority in the current livestock policy, training, public awareness, and gender inclusion can help close the gap between men and women in pastoral areas.

Determine the institutional dynamics that promote efficient and effective livestock production and marketing in Turkana, as well as the factors that motivate pastoralists to sell their animals when market conditions improve.

Due to the decentralized government structure and the rise in business investments, Turkana County is undergoing rapid change. In the future, researchers need to figure out how fast urbanization affects the economic, social, and environmental well-

being of pastoralists and their production systems in Turkana and other pastoral counties in Kenya.

New lifestyles and changing consumer needs, opportunities for better access to livestock markets created by urbanization, and projects like the LAPSSET corridor development plan, which is part of Kenya's Vision 2030 and aims to connect Kenya, Ethiopia, and South Sudan through infrastructure and regional development projects, are also things to think about.

Future research should also establish relationships between urban growth and the development of rural economies, evaluate possible motivational factors for encouraging pastoralists to sell their animals, and identify barriers preventing pastoralists from capitalizing on existing markets. Roba et al. (2019) and Dobbins et al. (2018) say that the market development action suggests ways for pastoralists to improve, adopt, and change their ways of thinking and doing things when it comes to selling their livestock.

The knowledge gained from these kinds of research studies would help place pastoral production systems in a changing social and economic environment. This would make sure that pastoral livelihoods are in line with the changes that are happening and take advantage of business opportunities in East Africa.

5.3 Research Study Conclusion

The knowledge gained from such research studies would support the positioning of pastoral production systems in changing socioeconomic contexts and ensure pastoral livelihoods are in sync with the current changes while capitalizing on available business opportunities in the East African region.

5.3.1 Conclusion on the Literature Resources Reviewed

Animal agriculture and pastoralism are economic activities for both developing and developed nations, according to the literature reviewed. They contribute significantly to national GDPs, local and regional economies, and the livelihoods of livestock-dependent populations. The livestock sector helps households and entrepreneurs who depend on livestock for food, income, and food security by coming up with ways to fight poverty and encourage entrepreneurship.

It is a viable source for expanding and diversifying business opportunities and investing in the industry. Production, primarily agricultural land, water, expertise, capital, labor, and management, is necessary for the growth and performance of the livestock sector in different regions of the world. Even though the environment and farming conditions in arid areas are harsh, agricultural projects can be done because there are enough good production factors.

Various livestock-based enterprises and business opportunities have had a positive impact on the socioeconomic well-being of states, regions, communities, and households due to a collection of hybridized, strategic, interdependent, and collaborative aspects of animal agriculture and trade. Growing populations, shrinking areas for animal agriculture, a lack of markets and the inefficiency of many existing markets, as well as the

fact that livestock farmers and entrepreneurs are still having trouble selling their animals and animal products, all make it hard for the livestock sector to grow.

Animal agriculture is the primary source of income and socioeconomic prosperity for numerous highland livestock farmers, pastoralists, smallholder rural livestock farmers, and livestock-based entrepreneurs in numerous regions of the world. In both arid and semiarid areas, the effects of seasonal changes and the number of people and livestock have affected livestock production methods and ways to deal with problems.

In many semiarid regions, intensive systems, consisting primarily of ranching with livestock holding and fattening lands, predominate. For maximum per-unit livestock yields, the production system is market-driven, employs highly specialized labor, and incurs input investments. In this way of raising livestock, mechanizing the farm's infrastructure and operations is seen as a key part of making production more efficient, making the farm more competitive, and making better use of time.

To industrialize animal farming, governments, industries, business groups, and sole proprietors invest in the production system. In a number of arid and semi-arid regions, extensive livestock production systems, primarily pastoralism, nomadism, transhumance, and regular livestock herding, are practiced because the available land supports high livestock and human population densities. Depending on the scale of investments and land use, intensive and extensive livestock production systems may endanger environmental viability and land carrying capacity. They are able to cause resource-based conflicts across and within borders.

Numerous countries are currently net exporters of live animals, livestock products, raw materials, and livestock-based technologies. Pastoral communities have large herds of livestock, which they utilize as a form of currency storage. Countries want to change rural economies from being based on culture and survival to being based on the market. They do this by making strategic changes to livestock investment structures and organization, adding value, marketing, and distribution.

Despite a few instances of successful livestock development, livestock production remains below the potential of breeds and production factors. There is still a slow expansion of modern livestock farming technologies, widespread illiteracy among livestock farmers, and inadequate capital financing to facilitate the adoption and replication of livestock production technologies, knowledge, and skills for the development of innovative, sustainable solutions.

Research, recognizing agriculture as a part of the state economy, and investing in strategic livestock business opportunities will help the livestock sector grow in the dry parts of Kenya and Eastern Africa. Governments, civil society, and businesses can lobby for agricultural financing, policy development, strengthening the business side of livestock production, empowering public-private partnerships and links, improving the functionality of all market segments, and giving consumers better access to livestock products and services through agricultural research and market surveys.

Pastoral communities remain impoverished despite possessing abundant livestock resources and fertile lands due to the cultural dominance of pastoralists, which encourages the domestication of livestock, a lack of knowledge, and the gradual commercialization of the pastoral economy. Globally, developed countries are always

investing in precision agriculture through research, the development of new technologies, and giving farmers and small business owners more power.

In the livestock-based industries of production efficacy, recycling of livestock waste, controlled grazing, and animal feed formulation and nutrition, there are opportunities for investment. Enhancing the acceptability of livestock and livestock products from pastoral regions by enhancing local breeds and reducing movement restrictions. The smartness of livestock production and marketing depends on the number and quality of theories, policies, and rules that are in line with the respected theoretical and practical approaches to livestock sector development and performance management.

5.3.2 Conclusion on Research Study Results

5.3.2.1 Study Population and Livestock Trade. Pastoral regions have historically relied on the livestock trade as an economic activity and a source of subsistence for livestock keepers and traders. There are significant differences in their ages, levels of experience, capital resources, and socioeconomic standing. Similarly, the majority of livestock traders are illiterate, with only 5% possessing secondary and tertiary education. The situation makes it harder for local merchants to talk to and compete with more advanced merchants and business owners from other parts of the country.

In Turkana County, livestock marketing is dominated by men. Faced with substantial sociocultural and economic obstacles, approximately 15% of female traders struggle to maintain a livestock business. Transformational and capacity-building strategies for livestock keepers, traders, youth, and women are needed to help more livestock producers get more education and get involved in livestock trade and other ways to make money.

5.3.2.2 Livestock Production and Market Access in Pastoral Areas. Many consider the livestock sector in Turkana County to be non-progressive due to the scarcity of essential livestock production factors, primarily water and pasture; frequent droughts; insecurity; pests and diseases; limited knowledge and skills among livestock producers and traders; and the inefficiency of numerous livestock markets. Pastoralists use pastoralism, nomadism, herding, and practices called "ethnoveterinary" to keep their livestock healthy and productive throughout the year.

The primary purposes of livestock production in Turkana County are not the market but rather food and significant sociocultural practices. Because the livestock trade is unstructured, traders who are "informed livestock producers" profit from it. Consequently, livestock producers believe they are not compensated adequately for their animals. Low-capital traders believe that wealthy traders have initiated fierce competition.

Due to inferior livestock breeds in the county of Turkana, producers and livestock dealers cannot compete in international markets. The trading of livestock is governed by the principle of the willing buyer and the willing seller, and transaction prices are negotiated. It means that there are no marketing strategies or ways to figure out prices, like weighing, price averages, and equilibrium prices.

Rapid urbanization in pastoral areas threatens pastoralism and pastoralists' way of life as grazing lands continue to shrink and pastoralists face the threat of being kicked out of their homes. This leaves pastoralists and their animals without enough resources to make a living. Prices for livestock vary widely between markets. Away from Kenya's livestock production zones, meat prices in Turkana County are exorbitant compared to those in the country's most populous cities. It is ironic that towns in Turkana are located

in areas conducive to livestock production. These differences affect how livestock is sold, how markets work, access to other possible markets, and whether or not consumers can get to value chains for livestock products.

The effects of climate change have a negative effect on the production ecosystems of Turkana. Climate change is a serious threat to livestock production, marketing, and the food and income security of people who depend on livestock because governments, civil society, and households don't have strategies for being ready, resilient, and self-reliant.

While traders are aware of livestock marketing activities in their respective markets, their knowledge of livestock marketing on a national scale is limited. They are unable to meet the current demand from traders and consumers with the current livestock supply on the market. Due to the high number of illiterate traders and their limited experience with the country's livestock market, most traders cannot understand how supply and demand work and how they affect important parts of the livestock market economy.

In other countries, including cities in Kenya, high-capital traders already dominate tertiary livestock markets. Due to a lack of capital and income, merchants in Turkana County are unable to compete in tertiary markets, thereby reducing their chances of competing in external markets. Turkana County has trouble keeping track of the livestock trade because there are not enough maps of markets and traders.

The stakeholders have not conducted exhaustive market surveys that would enable them to analyze business trends and dynamics, make decisions on livestock product development and value addition, improve the management of consumer needs, anticipate livestock business risks, and optimize livestock production, marketing,

consumer interests, and sector performance management. The sale of livestock by producers and traders increases rural and urban cash flows in the county. Compared to livestock farmers, few livestock dealers maintain bank accounts. Even though a lot of animals are owned, this shows that people are not very wealthy, especially those who raise livestock.

Despite the fact that some livestock traders, primarily from primary markets, have noted the exploitative tendencies of secondary market traders, livestock markets continue to foster relationships and interactions among livestock traders, producers, and consumers. These interactions and relationships between market participants are necessary for managing how the market works, competition, and rivalry.

To strengthen livestock business theory and practice, livestock markets attract researchers and research projects, extension officers and their extension services, trainers and training programs, as well as entrepreneurial investments. For livestock markets in drylands to grow and stay healthy, pragmatic and multidisciplinary strategies are needed to help livestock production and marketing projects work around social, cultural, economic, political, and environmental problems.

The eradication of prevalent, notifiable, and zoonotic livestock diseases will make Turkana County a livestock disease-free zone, provide evidence to reverse the colonial-era quarantine, and improve market access by enhancing the competitive position of local traders in potential markets. Adopting livestock breeds that are hardy and highly productive, doing more research on livestock breeding, nutrition, and how well prices are set for livestock, and putting more emphasis on traders' competitive and comparative advantages are all ways to do this.

Planning for the livestock sector will bring together strategies and actions for managing livestock production and marketing processes and parts. It will also make it easier for pastoralists to change their traditional production economies into market-oriented goals.

5.3.3 Traders' Competition and Rivalry in Markets

The majority of livestock traders in Turkana County believe that competition is detrimental due to rivalry tendencies fostered by wealthy traders, primarily from secondary markets, who take advantage of uninformed livestock producers and low-capital traders to increase their market gains. Competitive rivalry is a big reason why producers, traders, and consumers fight and get annoyed with each other.

One of the leading causes of market disorder and low market satisfaction is the absence of a system to regulate competition and manage rivalries in markets. The rules for how livestock markets are run and how they are managed haven't been set up yet. This means that livestock markets don't have any rules to follow.

Despite the fact that many livestock traders maintain cordial relationships, the competitive rivalry fostered by a minority of traders continues to threaten livestock production, marketing, and trader cohesion. A deeper understanding of the benefits and drawbacks of market competition would facilitate the rationalization of stakeholder and consumer behavior and trade actions. Also, addressing the lack of money, knowledge, and status differences among traders will make it less likely that there will be a lot of competition in the market. This will make it easier for traders to work together, trust each other, and trade in an honest way.

5.3.4 Supply and Demand Relations in Markets

The majority of livestock markets in Turkana County are open daily and operate throughout the year. The government implements market days to structure and organize market operations for potential primary, secondary, and international markets. Most livestock traders, especially those from secondary markets, have moved away from raising animals as a way to make a living and instead run a number of small businesses.

Not so with primary and itinerant merchants, whose earnings are insufficient to support business diversification. Non-livestock keepers have not adopted livestock trading as a means of livelihood or business. When livestock is not priced well, it makes it hard for markets to get livestock and livestock products. Traders and butchers cannot meet consumer demands, and access to livestock markets outside of the country is limited.

In the absence of regulatory frameworks, the equilibrium between supply and demand in various markets is hampered. This can be remedied by developing strong marketing strategies and improving marketing organization systems. Regarding the livestock population and production potential of the county, the livestock supply is substantial and can satisfy the needs of local markets and consumers, as well as provide a significant surplus of animals for export markets.

The lack of tertiary (external) traders on the Kakuma market makes it impossible to sell livestock. In contrast, livestock prices in Lokichar and Kalemng'orok are reasonable, attracting tertiary traders and facilitating access to tertiary markets for local traders. An increase in unsold animals causes traders' operating capital to become idle, raises the cost of keeping livestock awaiting a sale, further decreases prices, and

prevents producers from selling animals of market weight. All kinds of livestock sellers want to take part in programs that will help them improve their skills and turn their weaknesses into profitable business opportunities.

Since livestock husbandry is the primary source of income for more than 70% of Turkana's population, promoting livestock trading will increase income and access to non-pastoral goods and services. Keep coming up with ways to improve access to food, income, nutritional needs, and business and market opportunities.

Strengthening marketing strategies for livestock, such as daily livestock trading, market days, and spot markets, will increase livestock sales, revenues, and instant livestock offtakes. The strategy will help create an all-inclusive, workable, ethical, and sustainable protocol for trading livestock that promotes fair trade and makes it easier for market participants to work together.

5.3.5 Theory and Livestock Production and Marketing

Participants in the livestock industry in Turkana County believe that healthy competition encourages production, livestock trade in markets, product consumption, new ideas, diversification of livestock businesses, and enterprise sustainability. In the context of livestock marketing in the County of Turkana, there are no formal and prevalent business models. The Livestock Marketing Association (LMA) is the only semi-formal system currently in existence.

The absence of formal business models and marketing strategies makes it difficult to determine how competition and market performance are affected. Moreover, markets employ no distinct strategies beyond the bylaws developed by individual traders to govern market operations. In this way, combining business theories and models makes it easier

to match business prospects with the needs of stakeholders, build businesses, and make sure that the prioritized livestock marketing systems are competitive, profitable, and able to last.

The content, procedures, and market structures of livestock enterprises must be informed by theories and practices. But because there aren't any formalized business theories or models for selling livestock that are widely used, local markets aren't able to adapt to inevitable change and have to rely on traditional management. The agenda for the livestock sector is based on theory, models, principles, and well-known practices. This helps make sure that the challenges of livestock production and marketing are in line with the needs of a globalizing world: technological advances, digitizing businesses, using information systems, banking services, early warning and forecasting systems, and managing the effects of climate change.

5.3.6 Conclusion on Recommendations for future Research

Taking into account how well the livestock industry is doing in pastoral areas right now, continuous research on livestock production and marketing, traders' competition and rivalry, supply and demand relationships in markets, and the integration of theory and practice will improve livestock husbandry practices, environmental management, resource economics, maximize livestock business opportunities, and manage marketing performance.

Research with added value improves the quality of livestock and livestock products in order to promote sustainable production and consumption. Measuring market and non-market forces in local and external markets will guide market operations throughout the

season. Whether or not corporate theories and models can be used will affect how livestock is raised and sold in all market segments.

The levels of supply and demand within and between neighboring nations and regions will be determined by research on international markets. Research into the transformation of LMA into Livestock Marketing Cooperatives (LMC) requires research to find out how cooperatives will replace LMA and what value they will bring to the livestock sector in Turkana County.

The Lomidat Slaughterhouse Cooperative in Turkana County must be investigated, as well as the socioeconomic and political factors that led to its closure. Future research must define the positive and negative effects of prevalent livestock pests and diseases on livestock production and marketing, the role of women and young people in livestock development, and the urbanization of Turkana County. These are the primary areas of study.

Lack of theory-practice integration in livestock production and marketing hinders the growth of markets and the capitalization of potential livestock enterprises, which are essential to the development of rural economies and the socioeconomic transformation of livestock-dependent populations. The conclusion of this study is that the organization of livestock marketing through a structured market system and the changing of livestock producers and traders will bring order and sanity to livestock marketing and make it less competitive.

5.4 Summary Discussion of Study Findings and Business Cases

5.4.1 Discussion on Demographics

Fewer young men and women engage in livestock marketing in Turkana County than middle-aged men, who dominate the industry. Their market competitiveness and investment size are determined by their knowledge, abilities, experience, and capacities. Each trader has worked in the livestock industry for a long time, which shows how much the livestock industry helps people make a living.

Numerous inequities impede the performance of livestock dealers in their respective markets. Due to conflicting social requirements, livestock are primarily utilized for subsistence and cultural and economic requirements. A lot of pastoralists cannot read or write, which makes it hard for them to talk to each other and share information. Also, people who don't keep livestock haven't turned it into a business or way to make money.

5.4.2 Livestock Production and Market Access

The social, economic, political, environmental, and technological obstacles to livestock production and marketing have a significant impact on livestock production and marketing. They cause catastrophic losses to producers', traders', and private investors' livestock assets and investments. Turkana County will continue to be known as a "livestock disease zone" because of how common livestock diseases are there. This will make it harder to sell livestock and products made from livestock from Turkana County on national and international markets.

Government and civil society organizations' mapping of livestock production and marketing activities is essential for allocating resources to improve the performance of the livestock sector in drylands. This includes making sure there are enough livestock factors for production, marketing, and communication during the season.

The County of Turkana produces and trades indigenous breeds. Domestic breeds and products continue to lose vitality due to inbreeding and the continuous transfer of substandard livestock genes. This problem can be fixed by improving breeding systems, bringing in competitive livestock breeds and offspring that are adaptable and resilient, giving livestock good market weights, increasing the number and quality of livestock products, and making livestock and pastoralists more resilient and tolerant of harsh conditions.

There are no conventional and competitive livestock marketing strategies in place. Principally, buyer-seller interactions and transactional negotiations drive markets. Even though modern livestock marketing structures exist in the country, traditional methods continue to dominate livestock trading. Growing urbanization and corporate investments must be well planned in order to prevent excessive encroachment on pastoral lands, which would deplete livestock production factors. Pastoralists' livelihoods and ecosystems are put in jeopardy by the manifestation of climate change.

Enhancing pastoralists' traditional knowledge, integrating resource economics and planning into pastoral production systems, and encouraging environmental regeneration and conservation will revitalize pastoral lands and pastoralists' means of subsistence. Prices on the market must be determined precisely and imposed proportionally and reciprocally. Current marketing options suggest that the relationship between supply and

demand in the market can be improved, which would make prices more stable and affordable throughout the season.

Prices can be increased and maintained if traders and producers are oriented toward livestock marketing economics and performance administration. By organizing livestock marketing activities, traders will prioritize jurisdictional and affiliated markets and create an orderly transfer of livestock resources between markets. This will also reduce the number of people who don't follow the rules for selling livestock, make traders more likely to organize and enforce the brokering and keeping of business contracts, and cut down on market competition.

The aggregation of livestock in markets is an effective strategy for market functionality. However, the current low offtakes to secondary markets inhibit the exploitation of market potential in external markets. So as to avoid a backlog of unpurchased livestock, the management of livestock aggregation needs is prudent. Traders' capital will be at risk if they try to keep livestock healthy and in good shape before selling them.

The irony of high prices in Turkana County must be determined in order to comprehend its cause and effects on the pastoral economy, food, income, and nutrition security of livestock-reliant populations. Turkana County is a livestock-producing area, and the current high supply of livestock on the market would, in theory, mean that the high prices of livestock and products made from livestock should be looked into.

5.4.3 Competition and Rivalry in Livestock Markets

In regions that attract livestock, the relationship between livestock producers, routes, and primary livestock traders is strong. Extreme market competition, however, erodes business-based relationships between producers, primary market traders, and secondary market traders. By structuring and harmonizing stakeholder relationships, extreme competition and rivalry are mitigated. As a starting point for stakeholder engagement in local markets, the fact that livestock traders get along well with one another and view one another as fellow traders, rather than competitors, is significant.

The scarcity of financial resources and the low number of livestock marketing operations necessitate intense competition. Despite its significance, this aspect of developing markets and products is poorly understood in Turkana County. Relatively, it is believed that differences in traders' capacities foster rivalry and unjustified competition. In addition to what was learned about competition and rivalry, hypothesis testing showed that traders' competition has a big impact on livestock production and market access in pastoral areas.

5.4.4 Integration of Theories and Models into Livestock Marketing

There are no corporate models or theories integrated into the context of livestock marketing in Turkana County. Traditional livestock trade practices are uncompetitive in comparison to the conventional approaches and strategies used to operate livestock enterprises in other markets. When the local merchants try to model and carry out projects for livestock production and marketing, they find it hard to compete with merchants from other places who combine theory and practice.

None of the market strategy models, including those created by Professor Michael Porter and other marketing strategists, are employed in Turkana. This suggests that livestock marketing in Turkana County lacks the foundational principles and road maps required to facilitate the effectiveness of the pastoral economy through the continued commercialization of livestock resources. For a fully functional livestock marketing system to be put in place in the drylands, stakeholders' attitudes need to change a lot, and the right resources need to be put in place so that business models can be acquired and copied.

Since theories and models are not applied to livestock marketing activities in Turkana County, the assessed theory-based elements cannot establish correlational relationships between dependent and independent variables based on theory- and model-related issues. Even so, successful businesses invest in theories, models, and design frameworks to guide their business goals and development paths. This improves the positioning of their business portfolios as well as their competitiveness, profitability, and sustainability.

Investing in technology enables businesses to manage, mitigate, and enhance business performance by enhancing their capacity to predict, compete, and comprehend available markets. Therefore, the application of theories and models is required in all forms of business! Under the same premise, livestock marketing businesses can be grown, managed, and delivered in a way that is competitive to meet business goals and gives consumers what they need to be satisfied.

5.5 Way forward on Turkana Business Cases and Policy Frameworks

5.5.1 Livestock-based Livelihoods for Traders and Producers

Priorities for improving specific livestock value chains use government-led and community-based extension systems to help livestock producers and traders in the sub-county. Field schools for livestock and natural resource management should be utilized to increase livestock keepers' participation in learning and adopting best practices for the production and marketing of healthy, productive livestock and livestock products. This empowerment will increase the production capacities of pastoralists through access to markets.

FAO and TCG collaborated on a mapping project to identify potential sites for field school establishments in the sub-county. A preliminary survey will enable the documentation of farmers' needs and livestock production opportunities provided by their ecosystems. FAO and TCG are developing a training curriculum for livestock producer groups and livestock traders based on the requirements of their regions, means of subsistence, and markets. Look into the possibility of improving local breeds by bringing in new varieties and making them better.

Educating livestock producer groups and traders on the significance of breed improvement and market benefits is essential. This will help address the long-term inbreeding and transfer of inferior genes that have rendered livestock breeds uncompetitive in regional and global markets. FAO worked with the TCG and the Directorates of Livestock Production and Veterinary Services to make guidelines and training packages. These were made to help producers and traders improve the genetics and breeds of livestock, which is important for food and income security.

Maintaining strong ties between livestock producer groups, traders, and pasture/feed producers is essential. While awaiting sales, livestock forage producer groups can provide animal feed to livestock markets. These business arrangements will significantly reduce the expenses associated with herding animals awaiting sale. This arrangement is also an opportunity for livestock forage producers. Facilitate market connections by supporting business-to-business forums. This will make it easier for livestock producers, traders (both primary and secondary), and MoAPEF departments to work together to set up systems for making and selling livestock.

If stakeholder roles were played synergistically, business-to-business forums would enable livestock development stakeholders to maximize business opportunities presented by the subsector. Promoting sensitization workshops with policy-level offices is essential for the consolidation of business models to be implemented in livestock production and marketing in the county and sub-county. Within the limits of the policy framework that is already in place, the definition of livestock business models would structure how stakeholders market and trade livestock.

The newly formulated Turkana County Livestock Marketing Policy and Bill (2020), directed by the MoAPEF – Directorate of Livestock Production, mandates that county-level consultative forums outline the policy intent for the organization and management of the livestock trade. At the public participation stage, the same policy framework says that livestock development partners must work together to educate the communities (both the host community and the refugees) and make sure that their ideas are taken into account.

The framework for the development of the private sector and entrepreneurship is an excellent opportunity to establish livestock production and marketing initiatives in the subcounty. Identifying and engaging private sector actors in their respective areas of interest is necessary.

Crucial actors include research institutions, processors, the Kenya Meat Commission, the Lomidat Slaughterhouse, input suppliers like medicine and feed, and financial service providers. If the LMAs in the sub-county require lobbying and business representation, they must connect with product value chain entrepreneurs and assist them in securing business niches. Focus on enhancing service delivery in livestock production zones and commercial corridors.

Continuous mapping of livestock production zones and commercial possibilities TCG and FAO will document all catchment areas for livestock production in the sub-county and adjacent cross-border regions, as well as the potential production and business opportunities available. In these regions, the producer and trader categories must be identified, their touchpoints must be documented, and they must be compatible with EUTF II, KISED, and CIDP II objectives. This includes the Kalobeyei integrated settlement. Environmental and livestock production challenges are addressed by collaborating on domestic and affordable international solutions. This is done in an effective and long-lasting way by making plans for emergencies and growth that are run by the community.

Every project site must be assisted in developing contingency and expansion plans. On the basis of the prevalent production challenges, livestock disease and pest control, rangeland management, seasonality of livestock production, pastoral mobility,

resource sharing plans, internal and cross-border trade, and conflict resolution between communities ought to be the most essential aspects of community management plans. Check out how big the livestock production inputs and markets are in the catchment areas.

Systems for providing veterinary and production inputs, as well as disseminating knowledge and skills, are essential for achieving healthy and productive livestock resources. In addition, the organized system for producers to sell their animals safeguards them from the exploitative actions of illegal and unregistered/undocumented livestock dealers. By doing this, livestock producers will be able to see the value of their livestock resources and the return on their investments, as well as help the livestock market economy grow, which is what they want.

The context of livestock production and marketing in Turkana West Sub County depicts a system in which producers and itinerant traders transport livestock resources from catchment areas to nearby primary markets. The catchment areas are zones for animal husbandry. Stocks can be bought from the primary market by the secondary traders on the Kakuma main market.

At the Kakuma market, primary traders have the option of selling animals to secondary traders. Direct movement of livestock from catchment areas to the secondary market in Kakuma is seen as a threat to organized livestock trading, where all parts of the livestock market value chain are integrated into the marketing system, as shown in the diagram below.

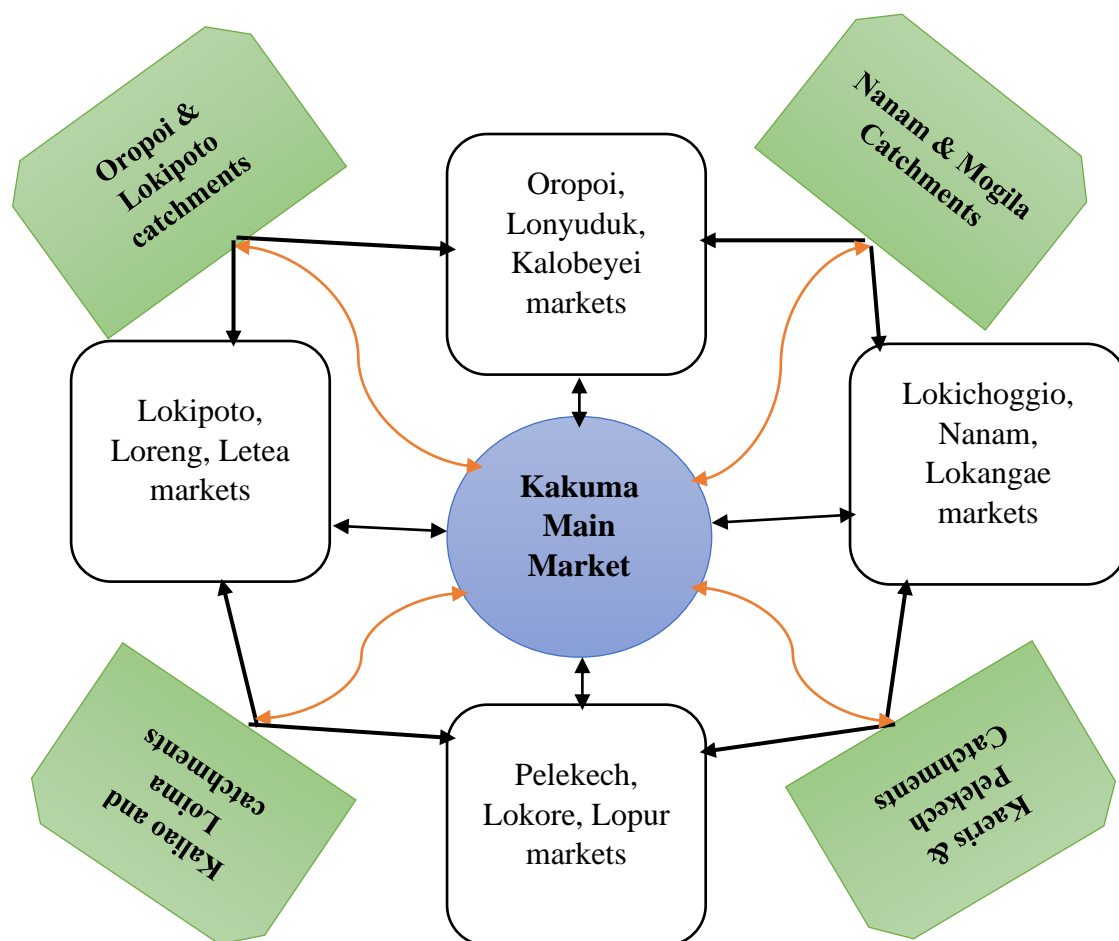


Figure 5.5.1-1: Livestock production areas and markets in Turkana West, Kenya

Nanam, Mogila, Oropoi, and Lokipoto are the most ideal and conducive catchment areas for livestock production in order to support livestock breed improvement programs. Pastoralists can introduce improved breeds for large and small herds, with field schools in charge of their management. Along with the refugees, TCG, FAO, DCA, and LWF brought better local chicken breeds to the Kalobeyei settlement and the villages of the host community.

Beneficiaries include members of the Farmer Field School (FFS) group and needy households. The introduction of new breeds into the local chicken population is resulting in increased production and market profits. Breed improvement will help with problems

like poor breed quality, susceptibility to disease and pests, low productivity, and poor market competitiveness.

5.5.1.1 Capacity Building of Livestock Producers and Traders. Sensitize livestock producers in all catchment areas and use the transformation caused by training and exposure to convince them to sell their animals to meet their financial obligations. The livestock traders in the livestock-receiving regions must be identified, registered, and incorporated into the marketing efforts of the livestock traders. For traders to take full responsibility for what they do with livestock, they need to make their operations official.

The department of social services will register all of the primary markets in the subcounty, including the Kalobeyei settlement livestock association, in collaboration with CLMC and Kakuma LMA. Specialized training programs need to be developed and put into place to give producers and traders knowledge, skills, and the chance to change their minds about the health, production, and marketing of livestock and their connections to markets and stakeholders.

The livestock marketing skills taught to itinerant traders will make them immediate educators of livestock producers while expanding their stock aggregation capacities to reliably supply multiple primary markets and the primary market of Kakuma. Increase livestock-dependent population training in the sub-county in order to maximize returns from livestock species kept. They should write down their worries about their jobs, businesses, public health, and the way conflicts are solved.

5.5.1.2 Improve Operations at Kakuma Secondary Market. Conduct additional analysis of the dynamics of supply and demand in the Kakuma livestock market. The survey will analyze internal and external factors that contribute to the relational inefficiency of the key market forces. For instance, it is ironic that sales and slaughter are low despite the increased availability of livestock on the market. This is a minor issue that necessitates additional research and capacity-building efforts. Only 70 of the approximately 250 members of the Kakuma market who subscribe to its daily operations are active participants. This level of livestock trade participation is below the minimum required for membership.

Increased capacity building and market engagement must therefore increase the number of market participants. Examine the pricing of livestock to ascertain current market prices that are advantageous for stakeholders in the livestock industry and product consumers. Lowered prices will increase demand for livestock and livestock products due to consumers' strong preference for livestock and livestock products. Fair pricing could also open up opportunities in tertiary markets, leading to large sales that help local traders get back the operating capital they are currently holding in livestock.

The dealers on the Kakuma market can dispose of their surplus stock by taking advantage of the relatively low prices on the secondary markets of Lodwar and Lokichar. Its success depends on the purchase prices of upcoming stock sales on the Kakuma market. By reviewing and using the most accurate prices for buying and selling livestock, the Kakuma market can keep supplying the Lodwar and Lokichar markets, where up to 80% of daily livestock sales take place (market records).

On the grounds of the Kakuma livestock market are a veterinary pharmacy, a laboratory for immediate diagnostics and disease surveillance, and a livestock feed store. Except for the laboratory, which must be managed by the Directorate of Veterinary Services, merchants are permitted to raise capital and operate the facility. As CDRs and store or shop employees for livestock inputs, prospective livestock dealers and market workers could be educated. Instead of dumping tons of hides and skins in the market yard, the total value of livestock can be increased by doing a thorough market analysis and building relationships with dealers in hides and skins.

Introduce specific market days as part of an ongoing plan to organize the Kakuma livestock market by the County Directorate of Livestock Production. Setting a market day in a market where livestock resources are already abundant will increase livestock aggregation and supply beyond the current market demand. Market days can work if people who want to buy livestock can buy a lot of animals on market days to sell at terminal markets.

This arrangement will replenish livestock dealers' working capital, revitalizing the entire livestock industry. Introduce specific market days as part of an ongoing plan to organize the Kakuma livestock market by the County Directorate of Livestock Production. Setting a market day in a market where livestock resources are already abundant will increase livestock aggregation and supply beyond the current market demand. Market days can work if people who want to buy livestock can buy a lot of animals on market days to sell at terminal markets. This arrangement will replenish livestock dealers' working capital, revitalizing the entire livestock industry.

5.5.1.3 Support Livestock Trade in Kalobeyei Settlement. The authorities provide the Kalobeyei Integrated Settlement Livestock Marketing Association with land and physical market premises (a yard) in collaboration with the relevant stakeholders. The presumption will protect livestock resources and traders as they do business, and it will also encourage settlements for livestock trade.

Inform all livestock traders in the Kalobeyei settlement. Currently, members of the host community trade in live animals, while refugees trade in meat value chains via butchers. Refugees should also be encouraged to buy and sell live animals, and local merchants should establish butchereries in the settlement. This occurs frequently in the Kakuma Refugee Camp.

All butchers in the Kalobeyei settlement must be registered and receive training and exposure in livestock trade, public health, group organization, and alternative means of subsistence. Refugee chicken farmers produce eggs and live chickens for sale. The settlement of Kalobeyei must incorporate the most successful farmers and households into its marketing and growth strategy for livestock. FAO and TCG will need to conduct an analysis of the poultry value chain to inform poultry production and marketing strategies, especially for refugees. Since refugees cannot keep even small animals because of where they live and how they live, they still rely on poultry as their main source of income from livestock.

Turkana West Sub County has been identified as a potential area for livestock production and marketing. The Turkana County CIDP II and the KISED framework can be used to address the identified performance challenges. This gives partners and

communities the power to work together and put well-thought-out agricultural strategies into action under the direction of the Turkana County Government.

The proposed livestock marketing system for the sub-county is critical for mobilizing livestock producers and traders to coordinate livestock trading in primary markets, Kakuma's secondary market, and external tertiary markets via off-takers, as well as monetising livestock value chain consumers. This goal will be met if the proposed livestock marketing system is made a permanent part of the subcounty livestock development plan to organize the livestock economies now and in the future.

5.5.1.4 Climate Change Policy Gaps, Action points, and Recommendations.

As is the case in numerous other fields cited in the reviewed literature, the primary climate challenges have resulted in policy gaps and insufficient responses. Consequently, the fight against climate change to date, especially in arid regions, has rendered biodiversity safe. As the effects of climate change get worse, it is clear that poor populations are becoming less likely to survive.

Unsustainable investments resulting in non-harmonized policy decisions have contributed to the deterioration of natural resources caused by expanding urbanization, resulting in the encroachment of pastoral lands and the overexploitation of biodiversity. In this time of climate change and growing desertification, there are no policies that are enough to protect pastoral production systems.

This has led to less money being spent on production, such as crop farming and caring for livestock, to the point where investments in health and marketing are not enough to maximize the gains from such important parts of the productivity of the pastoral

economy. This is exacerbated by the fact that roles, responsibilities, and investments are performed multiple times.

To increase the objectivity of the fight against climate change through policy frameworks, all stakeholders and their intentions must be aligned with the same objective and focal point. Because traditional ways of making a living help people adapt to climate change and lessen its effects on the environment, we need to think about systems thinking and the management of climate change's complexity through policy review and value addition.

The agricultural sector has always played an important role in pastoral areas because it has contributed to the growth of resilience and adaptability in response to anticipated environmental changes. Environmental resource management and development must be meticulously planned in order to sustain an ecosystem's components, i.e., high biodiversity levels. The most effective way to improve regional and local climate change resilience is to integrate adaptation strategies. Building marketing systems that take into account long-term, profitable value chains for populations will help to speed up the gains that pastoralists, in particular, should see from their jobs.

To improve modeling of climate change strategies based on action research, experience, and the synergistic engagement of relevant boundary partners, policy decisions should be in line with strategic goals to reduce climate change and increase population growth.

To improve the modeling of climate change strategies based on action research, experience, and the synergistic engagement of relevant boundary partners, policy decisions should be in line with strategic goals to reduce climate change and increase

population growth. As a process mechanism, identifying climate change hotspots is most effectively achieved by establishing links between people, the environment, and profit and by facilitating science-policy communication. This case will help agro-pastoral communities, which will benefit from interventions, make sure that their production is driven by market needs and is in line with development policies and frameworks.

5.6 Conclusion and Recommendations on CSR

"Business ethics" and "corporate social responsibility" (CSR) are crucial aspects of business for better synchronizing corporate objectives with societal demands and environmental sustainability. They intensify "accountability" (taking responsibility for one's actions) and "transparency" (openness and communication) systems that safeguard the social, economic, and environmental aspects of the business programming of corporations and society. If their plans don't change, they don't do too many production experiments, and the right and wrong choices are made clear, most corporations will adopt innovations that make society better off.

Legal enforcement of CSR will, as a matter of policy, encourage companies to improve their licensing and business evaluations, follow natural and common law, improve the morality of their business programs, increase stakeholder participation and feedback, and take legal responsibility for their actions.

It is anticipated that corporations and society will strengthen their partnerships, identify problems of injustice, and utilize pragmatism and potential when planning solutions based on predetermined principles. When there is good management, crony capitalism is kept to a minimum, stakeholder trade-offs are perfected, all CSR parts are legally enforced, and human resources are used and motivated in the right way, products

and business relationships will be more efficient and effective. Managing competition and market dynamics, promoting gender equality, and believing in the rule of law will also make CSR provisions mandatory for businesses and society as a whole.

The absence of legal enforcement of corporate social responsibility (CSR) and other business processes has devastating effects on the relationships and business outcomes expected from corporate-society interactions. Among the many negative effects, businesses will have a bad public image and be less visible or well known. Employees' motivation and morale will also suffer, which will hurt their work and output.

The absence of law enforcement compromises the objectivity of businesses, thereby restricting the size and scope of business investments. Due to the frequently observable inefficiencies of CSR's altruistic/philanthropic strategy in practice, businesses are likely to mobilize less volunteer participation from society, thereby inflating their operations budgets. In the same way, corporations will have fewer business partnerships, fewer ways to make money, a bad work environment, and less creativity and professionalism from their employees.

To foster proactive, innovative, profitable, welfare-enhancing, sustainable, and legally moral corporations and businesses, it is best practice to consider legal integration in business and sensitivity to resulting business impacts. The production and marketing of livestock is not exempt from ethically sound CSR policies. It is important, and interventions based on livestock will help a lot to meet the needs of stakeholders by using social, economic, and environmental pillars to set engagement rules and deliver services.

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APPENDICES

APPENDIX A: Selected Data Analysis Output

Appendix A(1): Tests for One-Way Analysis of Variance

Appendix A(1a): One-way ANOVA - difference in livestock production and market access

ANOVA

Average_LivprocMarketaccess Average of livestock production and market access

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18.164	2	9.082	34.253	.000
Within Groups	43.747	165	.265		
Total	61.911	167			

Appendix A(1b): One-way ANOVA - difference in traders' competitive rivalry in markets

ANOVA

AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive rivalry

	Sum Squares	of df	Mean Square	F	Sig.
Between Groups	21.709	2	10.855	39.966	.000
Within Groups	44.813	165	.272		
Total	66.522	167			

Appendix A(1c): One-way ANOVA - difference in demand and supply in markets
ANOVA

Average_Total_Demand_Supply Average Total demand and supply

	Sum Squares	of df	Mean Square	F	Sig.
Between Groups	27.028	2	13.514	25.124	.000
Within Groups	88.750	165	.538		
Total	115.778	167			

Appendix (1d): One-way ANOVA for the difference in theory on livestock production and marketing across the three markets

ANOVA

Average_Total_Theorytheme4 Average Total theory theme 4

	Sum Squares	of df	Mean Square	F	Sig.
Between Groups	24.640	2	12.320	20.528	.000
Within Groups	99.026	165	.600		

Total	123.666	167			
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Appendix A(2): Regression Analysis Results

Appendix A(2a): Effect of trader's competitive rivalry on livestock production and market access in the livestock market in pastoral areas

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly ^b		Enter

a. Dependent Variable: Average_LivprocMarketaccess Average of livestock production and market access

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.395 ^a	.156	.151	.56111

a. Predictors: (Constant), AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	9.647	1	9.647	30.642	.000 ^b
Residual	52.263	166	.315		
Total	61.911	167			

a. Dependent Variable: Average_LivprocMarketaccess Average of livestock production and market access

b. Predictors: (Constant), AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.319	.219		6.028	.000
	AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly	.381	.069	.395	5.536	.000

a. Dependent Variable: Average_LivprocMarketaccess Average of livestock production and market access

Appendix (2b): Effect of trader's competitive rivalry on balance between supply and demand in the livestock market in pastoral areas

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly ^b		Enter

a. Dependent Variable: Average_Total_Demand_Supply Average Total demand and supply

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.185 ^a	.034	.029	.82065

a. Predictors: (Constant), AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.983	1	3.983	5.914	.016 ^b
	Residual	111.795	166	.673		
	Total	115.778	167			

a. Dependent Variable: Average_Total_Demand_Supply Average Total demand and supply

b. Predictors: (Constant), AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.737	.320		8.551	.000
AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly	.245	.101	.185	2.432	.016

a. Dependent Variable: Average_Total_Demand_Supply Average Total demand and supply

Appendix A(2c): Effect of trader's competitive rivalry on theory and livestock production and marketing.

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly ^b		Enter

a. Dependent Variable: Average_Total_Theorytheme4 Average Total theory theme 4

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.125 ^a	.016	.010	.85631

a. Predictors: (Constant), AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.944	1	1.944	2.652	.105 ^b
Residual	121.722	166	.733		
Total	123.666	167			

a. Dependent Variable: Average_Total_Theorytheme4 Average Total theory theme 4

b. Predictors: (Constant), AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.465	.334		7.380	.000
AverageTotals_ScoreCompe_Rivarly Average Total score of traders' competitive Rivarly	.171	.105	.125	1.628	.105

a. Dependent Variable: Average_Total_Theorytheme4 Average Total theory theme 4

APPENDIX B: Reliability Analysis Results

Appendix B(1a): Reliability Analysis Results for Retained Statements on Livestock production and market access

	Item Statistics		Item-Total Statistics				
Statements: Livestock production and market access	Mean	Std. Dev.	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Livestock production is real and progressive	2.88	1.20	23.55	20.24	0.33	0.24	0.46
Enormous livestock factors of production (pasture, water)	2.35	1.12	24.08	20.69	0.32	0.18	0.46
Livestock marketing is large in scope and size	3.05	1.27	23.38	21.53	0.18	0.10	0.51
Livestock producers, traders and consumers benefitting	3.52	1.32	22.91	19.08	0.39	0.24	0.43
Value addition for livestock productivity considered	1.43	0.82	25.01	22.84	0.22	0.15	0.50
Livestock marketing systems are efficient, competitive, and sustainable	2.36	1.25	24.07	19.77	0.35	0.27	0.45
Research and market surveys are regularized	1.95	1.07	24.49	22.35	0.17	0.13	0.50

Reliability Statistics: Cronbach's Alpha = 0.818; Cronbach's Alpha Based on Standardized Items = 0.510; N of Items = 7
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Appendix B(1c): Reliability Analysis Results for Retained Statements on Trader's competitive rivalry

	Item Statistics		Item-Total Statistics				
	Mean	Std. Dev.	Scale Mean if Deleted	Scale Variance if Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Deleted
Statements: Trader's competitive rivalry							
Livestock producers and traders relate well	3.41	1.16	27.69	29.17	0.27	0.32	0.50
Livestock traders relate well among themselves	3.60	1.11	27.50	30.38	0.19	0.34	0.52
Competition is beneficial to individuals and the sub sector	2.48	1.34	28.63	26.33	0.42	0.26	0.45
Competitive rivalry is evident in livestock markets	3.24	1.42	27.86	26.06	0.40	0.44	0.45
Cmpetitive rivalry affecting market performance	3.57	1.42	27.53	25.46	0.45	0.49	0.44
Competitive rivalry instigated by traders for own benefit	3.84	1.19	27.26	27.91	0.37	0.31	0.47

A system in place to regulate competition in markets	2.42	1.32	28.68	31.31	0.06	0.17	0.56
Competiton strengthening markets	2.77	1.41	28.33	28.92	0.20	0.25	0.52
Competition reducing livestock prices in markets	2.74	1.46	28.36	31.14	0.04	0.11	0.57
Reliability Statistics: Cronbach's Alpha = 0.836; Cronbach's Alpha Based on Standardized Items = 0.843; N of Items = 9							

Appendix B(1d): Reliability Analysis Results for Retained Statements on Demand and supply

Statements: Demand and supply	Item Statistics		Item-Total Statistics				
	Mean	Std. Dev.	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Livestock marketing is season-long	4.03	1.05	28.69	12.63	0.39	0.26	0.12
Traders diversifying their businesses and livelihoods	3.74	1.13	28.98	13.60	0.21	0.30	0.21
Livestock prices are consistent and affordable throughout the year	2.73	1.17	29.99	12.39	0.35	0.27	0.12

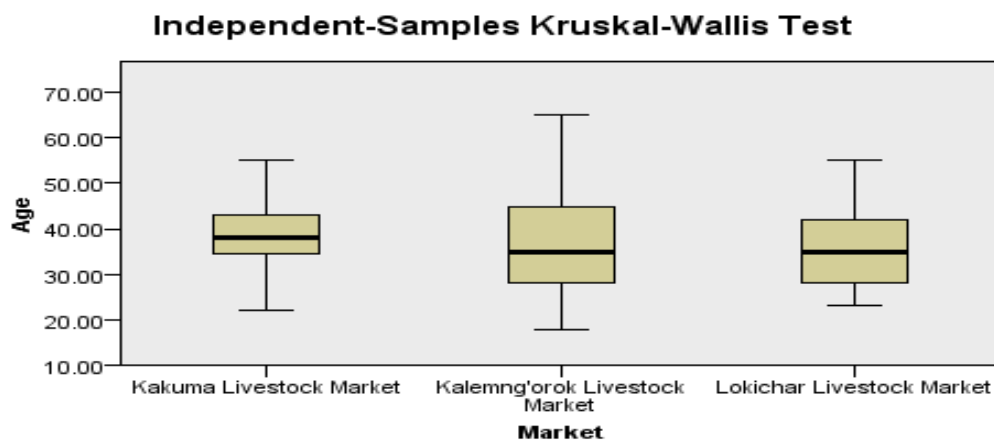
Reliability Statistics: Cronbach's Alpha = 0.883; Cronbach's Alpha Based on Standardized Items = 0.883; N of Items = 3

Appendix B(1e): Reliability Analysis Results for Retained Statements on Theory on Livestock Production and Marketing

	Item Statistics		Item-Total Statistics				
Statements: Theory and livestock production and marketing	Mean	Std. Dev.	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Competition is improving innovation in livestock marketing	3.87	1.15	31.11	13.83	0.47	0.33	0.37
Corporate theories are applied in livestock marketing	2.61	1.06	32.37	15.29	0.33	0.28	0.42
Formulated livestock marketing strategies are working	2.51	1.12	32.47	14.66	0.38	0.30	0.40

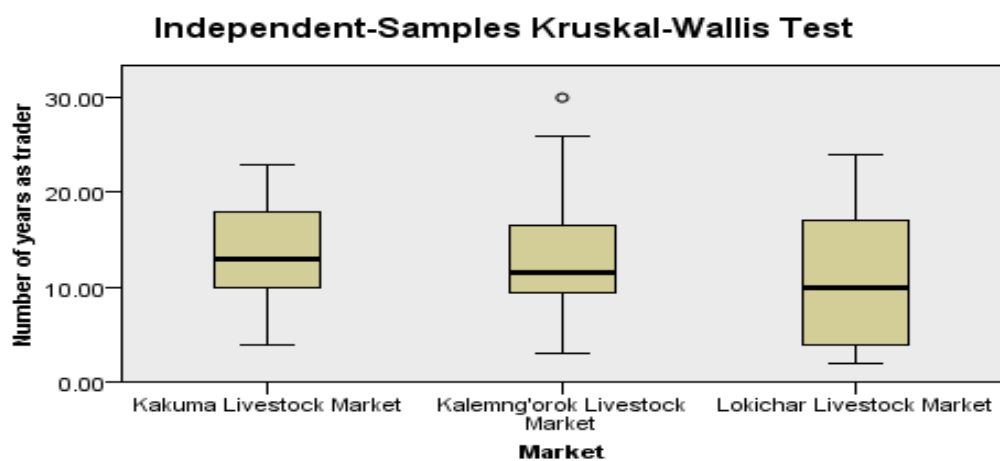
Reliability Statistics: Cronbach's Alpha = 0.792; Cronbach's Alpha Based on Standardized Items = 0.761; N of Items = 3

APPENDIX C: Graphical representation of Kruskal-Wallis test results



Total N	168
Test Statistic	4.615
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.100

1. The test statistic is adjusted for ties.



Total N	167
Test Statistic	7.085
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.029

1. The test statistic is adjusted for ties.

APPENDIX D: Primary study participants responses (Primary markets)

Objective 1: Traders competitiveness in markets	
Explain in general terms the context of livestock production in your locality and Turkana County at large?	<ul style="list-style-type: none"> - Pastoralism is the primary economic activity in Turkana. - Nomadism is the primary adaptation to drought and scarcity of production resources, such as water and pasture. - Especially in urban and peri-urban areas, households purchase animals from the market to keep in their yards. - Government and civil society organizations' restocking programs are a source that not only increases the number of livestock in households, but also encourages those without animals to acquire some. Even those who have abandoned pastoralism can recover their herds. - Those communities that still engage in livestock rustling and animal theft from neighbouring communities can use these illegal activities to replenish their herds. The law prohibits the theft of animals belonging to others. - Animals are also acquired by households through marriages in which the dowry is paid in the form of animals. Others receive animals as gifts from their friends. - Much of the feed for livestock is obtained from rangelands and open grazing fields through herding. Agropastoral communities do cultivate pasture on their farms, which they combine with farm waste to feed livestock. - Every year, pastoral households in Turkana migrate across the border to Uganda, South Sudan, and Ethiopia due to a lack of forage resources and water. - Large herd households must relocate to areas with abundant production resources. They also employ strategies such as splitting their herds to keep their animals alive during periods of severe drought.

	<ul style="list-style-type: none"> - Animals are frequently supplemented with commercial foods, such as maize, wheat, vegetables, and concentrates, in urban and peri-urban households. This is because there is insufficient land for animal grazing in urbanizing areas. - The majority of livestock keepers rely on traditional knowledge and methods to cultivate their livestock resources. As a result of government interventions on livestock and trade, an increasing number of herders are gaining access to conventional knowledge and skills regarding various aspects of livestock production. - In remote areas where government influence has not yet been established, barter trading is still common. Nevertheless, through the establishment of permanent and temporary market arenas, conventional livestock trading systems are being adopted, including the use of cash and technology in the transaction of livestock and livestock products. - The Turkana believe in livestock ownership and rely on them for survival. Pasture enclosures, organized grazing, and different areas for use during drought periods are examples of traditional practices designed to protect livestock resources from dangers and maintain productivity for the food security of households.
What are critical success factors promoting livestock production and industry in your	<ul style="list-style-type: none"> - A substantial proportion of rangeland ecosystems in Turkana are rich in biodiversity, allowing for the production of healthy and productive livestock resources. - Herders are young people whose primary responsibility is to participate in livestock production activities. - The county directorate of livestock production and the civil society are promoting livestock interventions for the purpose

locality and region?	<p>of sustaining pastoral livelihoods. These initiatives mobilize pastoralist households to learn and employ available resources to support livestock health and production.</p> <ul style="list-style-type: none"> - The county directorate of veterinary services is promoting community-based animal health and production initiatives that empower pastoral households to participate actively in matters pertaining to their well-being via livestock activities. - Improved access to veterinary and production inputs and extension services is facilitated by livestock immunization and mass treatment programmes, the availability of drug stores, and trained personnel, i.e., community disease reporters (CDRs). - Additionally, the number of herders engaging in livestock trading is increasing, particularly on primary and secondary markets. - There are potential dry and wet season grazing areas in Turkana, including hills, ranges, and riverine areas, and savannah grasslands, which provide forage resources and ecological requirements for livestock species to thrive. - Increasing urbanization places livestock keepers in close proximity to major towns and commercial centres, where they can purchase non-pastoral goods, services, and various inputs for their livestock production needs. - Through entitlement to state-provided services, government departments and humanitarian aid to pastoral communities are also expanding. As a result, livestock owners have the opportunity to advocate for the protection of their rights and livelihoods (livestock) by the government and other duty bearers.
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	<ul style="list-style-type: none"> - Children of pastors who attended school have maintained a strong commitment to the improvement of pastoral livelihoods. They have received training in various facets of livestock production. Constantly provide solutions to government and civil society for livestock development needs. - During wet seasons, significant amounts of farm waste are collected and fed to livestock. The surplus is stored for use during periods of scarcity.
What factors inhibit livestock development and industry in your locality?	<ul style="list-style-type: none"> - The amount of precipitation in Turkana is minimal. In failed seasons, insufficient precipitation is received. - Due to infrequent and insufficient precipitation, there is a lack of grass and water. This deteriorates as the duration of dry periods increases. - Drought and extended periods of dryness. Dry periods are becoming significantly longer than wet seasons, sometimes lasting up to three years. - The majority of livestock markets in Turkana are dysfunctional and inefficient, limiting livestock trade opportunities and market access to other potential markets. - Pastoralist households are highly reliant on livestock for their needs. This constrains their willingness to sell more animals, even during prosperous market seasons. - Pastoralists are vulnerable to food and income insecurity and malnutrition due to their inability to effectively manage hazards, livestock risks, and emergency situations. - Still prevalent, livestock diseases diminish consumer loyalty to livestock and products destined for markets. Pastoral areas are known to harbour diseases of veterinary

	<p>importance, which will affect consumers' access to markets and their health.</p> <ul style="list-style-type: none"> - Pastoralists are unable to leverage their livestock resources while maintaining market competitiveness and productivity if they do not have access to sufficient funds to purchase medicine and feeds during times of emergency. - A high level of illiteracy among pastoralists prevents them from gaining access to information on livestock production and markets, as well as from utilizing technology to power market transactions. - Fewer alternative livelihoods and less diversification of ways of life prevent pastoralists from taking advantage of diverse livelihood opportunities that can strengthen their food and income security throughout the seasons, thereby enhancing their capacity to manage livestock production resources effectively. - The vast majority of livestock production regions are located in remote areas with limited communication networks, limiting the availability of market information updates. - In some highly productive regions, irregular seasons have led to a drastic reduction in biodiversity, necessitating cross-border production of animals such as livestock. This restricts the availability of livestock such as livestock and sheep on local markets. - In some regions, traditional livestock production and management systems are resistant to the influence of conventional knowledge introduced by the government and civil society. Lack of value-added livestock production affects the rate at which animals are exchanged in markets.
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	<ul style="list-style-type: none"> - High levels of insecurity exist in border regions with abundant livestock resources. - Raids on livestock are common, and traders transporting animals to markets are sometimes raided and their livestock stolen. This has led to some of them abandoning livestock husbandry and commerce. - The demoralization of low-capital traders and livestock farmers on the market is caused by their exploitation. They complain that they do not receive the true value of their animals.
Explain the scope and size of livestock marketing in your area and Turkana County at Large?	<ul style="list-style-type: none"> - Many pastoralists households keep animals - Pastoralists' intent to domesticate their animals sustains huge numbers of livestock in Turkana. - During wet seasons, when households that had migrated to distant areas return, the market gains access to high-quality livestock. - Capital of traders determines the livestock they are able to acquire in a given region. - Animals are purchased in large quantities by traders with ample capital. This number of merchants is extremely low. The majority of traders have limited financial resources. - Water- and pasture-rich regions attract a greater number of livestock. Some of these regions are located nearer to markets. This can be a good opportunity for livestock marketing during wet seasons. - Primary markets are typically of a modest size. When tertiary traders from external markets increase livestock intake, secondary markets become larger and more vibrant. - Collapse of slaughterhouses, reduction in the number of hotels, restaurants, and restaurants.

	<ul style="list-style-type: none"> - The market for hides and skins is very weak. Few hides and skins are sold, and the remainder are discarded. - Covid 19 reduced the market size. The pandemic's effects are still visible in livestock markets and operations. - There are a large number of traders in secondary livestock markets, but the vast majority lack the physical and financial resources necessary to access external markets. - The accumulation of livestock in the absence of a clear market incurs costs that render the livestock marketing venture unsustainable, particularly for traders with limited capital.
How do you link livestock production to local livestock markets operational in your area?	<ul style="list-style-type: none"> - In Turkana, livestock is the mainstay of household economics. - The majority of rural livestock farmers Raise animals for sociocultural reasons, such as weddings, household education, medical services, and food. - Pastoralists in urban areas maintain livestock for sale. This category of livestock owners is small and maintains a small number of animals. - Pastoralists in Turkana sell animals at the market when they have urgent financial needs. The belief that keeping animals for sale will endanger household livelihoods. - Through livestock and livelihood development initiatives, government departments and civil society organizations educate livestock keepers on production and marketing. This knowledge is gradually enhancing the commercialization aspirations of local livestock farmers. - Introduction of prolific, high-market-value livestock breeds strengthens the connection between production and markets.

	<ul style="list-style-type: none"> - Producers and traders of livestock who have participated in exposure visits are lobbying fellow pastoralists to adopt marketing of livestock resources. - Connecting local merchants with butcheries and hotels where they have contracts to supply those establishments - Raising producers', merchants', and consumers' awareness of the available products and market opportunities - Strengthening the linkages between specific markets and their corresponding production zones facilitates the market's access to livestock resources.
How have livestock markets benefited livestock producers and traders?	<ul style="list-style-type: none"> - Livestock markets afford livestock owners the opportunity to sell their animals. - Households' access to cash is facilitated by markets. - Market is a commercial location that enables livestock herders to become traders and participate in the livestock business. - Animals serve as capital for small businesses run by households. Therefore, markets transform animals and products into cash. - The sale of livestock provides livestock keepers with access to non-pastoral commodities, such as food, clothing, medical services, and education; some even improve their housing and way of life. - Livestock markets are a source of knowledge regarding economics, commerce, and the role of markets. - Markets foster cooperation among livestock stakeholders. For livestock producers to realize the value of their livestock resources, these partnerships are indispensable.

	<ul style="list-style-type: none"> - Markets provide an opportunity to diversify livelihoods, as a variety of products can still be traded in a livestock market, for example. - The market provides the means for producers to meet their immediate financial requirements. Pastoralists use markets to leverage their households, such as obtaining funds to support households during droughts when herds must be restocked. - The market assists livestock merchants in maintaining their market. The revenue generated by markets is reinvested in market operations. - Through the market, consumers can obtain livestock products from hotels, butchers, and supermarkets. - Markets motivate the commercialization of the livestock economy.
What challenges affect the performance of livestock markets in your area?	<ul style="list-style-type: none"> - There are no standard market yards for primary markets. Are in a poor state of repair. Some are in terrible condition. - Drought caused a decrease in livestock populations in areas with market potential. During wet seasons, livestock keepers prioritize reproduction, resulting in a shortage of livestock on the market. - Theft-acquired animals are sold in markets. Upon tracing, conflicts arise that have a significant impact on the affected market's operations. - During periods of drought, supplementary feeds are unavailable. - Local merchants are unable to meet demand for local consumption and other potential markets due to a lack of funds to purchase small and large quantities of inventory in sufficient quantities.

	<ul style="list-style-type: none"> - Due to the lack of employment in pastoral areas, households are unable to raise sufficient capital to engage in a substantial livestock business. - The majority of livestock markets lack transport. Animals travel to the market, which exposes them to dangers en route, and when they arrive at the market, they are underweight and have lost body condition. - Lack of aggregation centres and holding grounds has a negative impact on the accumulation, fattening, and treatment of livestock awaiting transport to the targeted markets. - The operations of sale yard management committees are affected by their lack of constructed capacities. This is due to widespread illiteracy and a lack of exposure, particularly to the management systems of contemporary livestock markets. - When livestock supply is abundant, it is difficult for traders to transport animals to secondary and tertiary markets. This is due to a lack of capital and dependable and affordable transportation facilities. This results in the majority of animals being consumed locally, with most livestock exports being conducted by tertiary traders from developed markets. - As a result of the risk of raids and theft, insecurity prevents the establishment of livestock holding grounds. - While accessing markets, the majority of traders have suffered animal attacks. - There is no readily available market to encourage traders to purchase large quantities of livestock. Purchasing animals in bulk and storing them until they reach market weight incurs enormous costs, causing traders to sell animals at a discount to avoid the costs associated with long-term animal storage.
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	<ul style="list-style-type: none"> - Turkana's market is largely unorganized. The strategies employed to deliver market activity are predominantly conventional. To support livestock marketing in Turkana, conventional strategies have not been integrally involved in establishing a well-defined livestock marketing system. - No market days and a lack of logistics prevent traders from transporting their animals between markets. Market days could only be successful if the secondary market was reliable and functional. - The lack of functionality of Lomidat abattoir has a devastating effect on the county's marketing system. Lomidat was an ideal tertiary market for producing various meat value chains from animals slaughtered in Turkana.
What actions do you think are essential for promoting livestock production and marketing in your area and Turkana County?	<p>Establishing partnerships with government and civil society organizations for the construction of market facilities, the provision of business grants and loans, and the development of training programs that facilitate knowledge transfer.</p> <p>Facilitating education programs for herders and traders to enable them to comprehend crucial aspects of livestock production and marketing. For the most nomadic herders, mobile schools for pastoralists can be incorporated into their nomadic lifestyle by incorporating mobile teachers into the moving pastoral households.</p> <p>Building resilience in pastoral communities enables them to comprehend the risks and difficulties associated with livestock husbandry. Building resiliency will enable them to create contingency and growth plans to endure adversity.</p> <p>Organizing marketing activities for livestock will facilitate the aggregation of livestock for targeting potential markets. A crucial aspect of livestock commercialization is aggregation.</p>

	<p>Facilitating the adoption of efficient methods of livestock husbandry and trade by pastoralists. This will allow them to raise healthy and productive livestock resources that can generate enormous market returns.</p> <p>Awareness of the significance of livestock marketing among livestock keepers will transform the traditional goals of livestock keeping to embrace the economic value of livestock resources. Educating livestock producers and traders on the market, how it functions, and the benefits it provides for pastoral economic development.</p> <p>Connecting livestock production efforts to markets is a tactic that can encourage livestock keepers to recognize the value of their natural resources and the monetary value it can generate.</p>
Objective 2: Competition and competitive rivalry	
In your view, how do livestock traders relate with livestock producers in markets?	<ul style="list-style-type: none"> - In production regions and primary markets, livestock producers and traders have positive relationships. They conduct transactions without much difficulty. - Since many traders are Turkana, relations between traders and livestock producers in lower market segments are also positive. This causes market homogenization. - Trainings provided to traders foster positive relationships between market participants. - Excellent working relations. The livestock industry brings together stakeholders. - The livestock market is open, and each herder and trader makes business decisions based on their own preferences. Nobody is compelled to conduct business. - Prices are negotiated by sellers and buyers, resulting in harmonious transactions.

<p>What is the relationship between livestock traders operating in different livestock market categories in your locality?</p>	<ul style="list-style-type: none"> - In many of the markets in which they engage, there are positive relationships between traders. - Despite trading among themselves, traders also assist others in acquiring stock, such as livestock species not found in the markets in which they operate. This is a strong indicator of business collaboration and relationships. - No animosity among livestock dealers. However, the vast disparity between traders with low and high capital leads to the exploitation of low capital traders on the market. - When visiting for business purposes, traders provide lodging for their fellow traders. This type of hosting facilitates business transactions between livestock merchants. - Secondary traders want primary traders to sell all of their animals exclusively to them, regardless of price. This is positive if a fair business approach is taken and transactions are not controlled at the expense of primary traders. - When secondary traders purchase more animals from primary traders, this presents an excellent opportunity for herders to supply the market with animals. - Due to a lack of organized trading, herders frequently engage in price-related disputes with merchants. - Since livestock trading is not regulated and prices are not accurately determined, livestock traders will continue to pursue their own interests at the expense of livestock herders. - As a result of an imbalance between supply and demand, an increase in the number of sale yards compels traders to demarcate their spheres of influence, resulting in unnecessary competition.
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	<ul style="list-style-type: none"> - Due to the difficulty of obtaining additional supplies from primary traders, secondary traders in some markets remain fragmented and their competition continues to diminish market gains. - The absence of established primary market yards does not entice secondary market buyers. This forces primary markets to always take animals to secondary markets where potential buyer are concentrates. - While at secondary markets, primary traders are inferior and are prone to exploitation. This continues to have them disadvantaged even during occasions when the market is fair.
How has competition among livestock traders benefitted and or negatively affected livestock trading among them?	<ul style="list-style-type: none"> - The healthy side of competition is proviking innovations and improving styles of livestock trade. - Competition is increasing partnerhips and business mergers and relationships abmong local and external traders. - Competition is leading to good understanding of the market system and comsuner behaviour - The livestock market agenda is increasing to encmpass the needs of populations in urban and peri-urban areas.
Do you see any elements of competitive rivalry in your local livestock markets, and what is the impact on livestock producers, traders, and consumers?	<ul style="list-style-type: none"> - Particularly evident in secondary markets is the existence of competitive rivalry. - Competitive rivalry is minimal in primary markets because good relations between traders prevent rivalry from affecting market operations and traders' relationships. - During a shortage of livestock, competitive rivalry intensifies on secondary markets and becomes significant on primary markets as well.

	<ul style="list-style-type: none"> - In primary markets, the operating capital of the majority of traders is virtually identical, making their purchase rates comparable. - In secondary markets, there is a vast disparity in operating capital between traders, resulting in intense competition. - Organised livestock trading, particularly at primary markets, enables traders to easily identify stolen animals brought to the markets. - Due to intense marketing activities and competition, it is difficult to detect stolen animals on the market. - Numerous markets lack fair trading laws and regulations.
In your view, what causes competitive rivalry in livestock markets, you know?	<ul style="list-style-type: none"> - Livestock traders' desire to maximize market profits at the expense of livestock herders and low-level traders is motivated by their covetousness. - Lack of coordination between market participants. This is particularly evident in secondary markets - The spirit of exploitation is especially evident during periods of low supply. - Diverse trader capacities predispose them to capital resource-related obstacles for effective market competition. - Ignorance of livestock prices and values, especially among livestock producers and dealers who are unaware of the market situation. - The demarcation of markets prevents the free movement of herders, livestock, and merchants across markets. This allows for competitive rivalry to restrict the free movement of livestock and traders across markets. - Unawareness of market technicalities, such as the management of market and non-market forces.

<p>What do you think needs to be done to minimize rivalry in livestock markets and enhance healthy competition in markets?</p>	<ul style="list-style-type: none"> - Modernizing and improving livestock marking yards. - Market days will facilitate market activities and productive interactions between traders. - Linking traders to comprehend how markets are interconnected. - Improving the knowledge and financial resources of all traders to create a level playing field. - Registration of market participants across all categories. - Creation of constitutions, ordinances, and regulations for all markets. - The training of livestock dealers on the significance of competition and the management of associated challenges. - Conduct site inspections of market systems that are better organized and performing. - Increase access to multiple markets rather than concentrating on a few. This will expand the scope of livestock trade between Turkana and other countries. - Access to capital through grants from the civil society and loans without interest from financial institutions. To encourage pastoralists to trade their livestock, the government can institute financial assistance programs. - All merchants should be made aware of the effects of competition on the economy and livelihoods of pastoral communities. This awareness will eliminate deliberate competition based on the interests of stakeholders. - To prevent exploitation of low-capital traders on both primary and secondary markets, it is necessary to implement a capacity-building program that establishes consensus on the roles of all market participants.
<p>Objective 3: Supply and Demand relations</p>	

<p>What is the relationship between livestock and product demand and supply in your locality and other areas in Turkana County you may know?</p>	<ul style="list-style-type: none"> - During dry seasons, there is an abundance of animals, but they are in poor condition. - When animals migrate, they cross borders to access local markets. - Unsold animals brought to the market are kept overnight and brought back the following day. This system increases trading costs. - In some markets, supply and demand are equal. In such markets, animals do not congregate. - During wet seasons, supply is abundant in some markets. The animals come from regions where herders have recognized the significance of commercializing livestock production. - The acquisition of livestock also depends on the elasticity and dynamics of prices. - When traders decide to stockpile animals, the market's supply is reduced, resulting in a high demand for livestock. - During times of low demand and high supply, particularly during periods of drought, producers and traders incur costs such as housing, feeding, medication, and security to keep animals healthy while they await sales opportunities. - During dry periods, local merchants' capital decreases, preventing them from competing with foreign merchants. - Despite the availability of business opportunities, many livestock farmers have yet to sell their animals at the required rate.
<p>In what ways do these market forces disadvantage</p>	<ul style="list-style-type: none"> - Pastoralist communities eat a great deal of meat. In market regions with a high population of non-pastoral communities, meat consumption is lower than expected.

<p>livestock producers and traders in your locality</p>	<ul style="list-style-type: none"> - Lack of capital hinders the ability of traders to transport animals to oversupplied markets. - Less trading capital and livestock do not provide a competitive advantage across markets for traders. - Even when supply is abundant, traders with low capital are at a disadvantage. Cannot purchase animals in bulk, limiting market growth and expansion. - It is difficult for merchants to diversify their businesses. The lack of capital and business knowledge is evident. - Traders run the risk of losing capital due to uncertainty, particularly during long drought periods. - Slow sales put animals at risk of losing condition and value while on the market, resulting in lower prices.
<p>Is there any form of imbalance you see in the demand and supply of livestock resources in your locality, and how does it affect you and households in your area?</p>	<ul style="list-style-type: none"> - Animals remain on the market for an extended period of time before being sold. - Despite a high supply, traders are unable to purchase animals in bulk. This is because of capital constraints and inability to access the tertiary market. - When animals are moved to other markets or returned to production areas when they are not purchased at a particular market. - When animals of market weight are not purchased, they lose condition and monetary value, which is detrimental to livestock producers, traders, and market revenue. - When traders, including those from high-level markets, reduce their participation in the market. This causes a significant disparity in sales and revenue. - When both producers and traders are unaware of the livestock market's condition. They lack the knowledge necessary to comprehend the market dynamics.

	<ul style="list-style-type: none"> - When spot markets, contractual sales, and agreements are unavailable or not utilized. - Epidemics such as Covid 19 and movement restrictions continue to restrict market access opportunities. - Lack of desired livestock species on the market, particularly in refugee camps' livestock markets, where cows are favored by the majority of the refugee population, the Dinka from South Sudan. - Population growth results in an increase in livestock sales and livestock product consumption. - During religious and traditional ceremonies. Muslims expand the market for camels.
If an imbalance between supply and demand exists in your locality, is there any way livestock traders have participated in promoting it?	<ul style="list-style-type: none"> - Traders wanting to dominate livestock trade in their markets - Traders dictating prices in markets and imposing stringent conditions for traders from other markets - Uninformed price setting - When animal prices reduce, traders especially with low capital become hesitant in purchasing animals. - Debts increase - High prices increasing livestock in stock keeping larger part of traders capital redundant - Trader interest to gain more returns through exploitation of livestock traders - When traders divert their capital to other forms of business, this therefore reduces livestock supply in markets leading to high prices
In your view, how should livestock/product supply and	<ul style="list-style-type: none"> - Encouraging producers of livestock to sell their animals. - Motivating livestock dealers to purchase animals from the market.

<p>demand be regulated in the context of your local markets?</p>	<ul style="list-style-type: none"> - The prices of livestock should encourage both livestock producers to sell and traders to continue buying and selling livestock. - Stock brokers should consider expanding their capital resources. - Government and partners should advocate for expanded access to livestock markets by addressing inherent obstacles. - By eradicating tendencies of competition, market partners must ensure that there is healthy competition in the market. - There is a need to make livestock meat value chains affordable in order to increase the number of animals slaughtered, thereby increasing the number of butcheries and restaurants in the region. - Investments by development partners in the functionality of local markets and linking of secondary to tertiary markets - Market days are viewed as advantageous for organized livestock trading. - Promote the modification of the behavior of livestock producers and market participants. - The livestock market should be open year-round. - Market participants must be informed about the livestock trade and market performance.
<p>What needs to be done in local markets to avoid the adverse effects of supply and demand imbalance?</p>	<ul style="list-style-type: none"> - Enhancing market infrastructure - Capital for market participants - Improving linkages and relationships among livestock traders so that they can engage in fair livestock trade - Elements of negative attitudes exhibited by livestock market stakeholders must be modified. - Introducing mentors to animal markets

	<ul style="list-style-type: none"> - Registration of combining markets with municipal authorities - Organization of markets for the trading of livestock
Objective 4: Livestock marketing strategies	
At what level are competition and rivalry evident at the heart of your local market(s)?	<ul style="list-style-type: none"> - In primary markets, competition is minimal. Only utilized by traders with relatively greater operating capital. - Numerous primary market traders operate from the same level. - Traders in primary markets are homogeneous. Because they are familiar with one another, there is greater order among them when trading on markets. - In primary markets, every trader is a member of the same tribe and community. - Animals are accumulated in local markets making the traders operating capital redundant.
Which threats do new entrants to your local markets pose?	<ul style="list-style-type: none"> - Stakeholders from other markets purchase from primary markets enabling producers and local entrepreneurs to generate sales. - External traders exploit primary market producers and traders through trade process manipulation. - They dominate local entrepreneurs due to their superior capital resources. - They come with slightly increased prices to facilitate the sale of animals by livestock producers. This makes local entrepreneurs uncompetitive. - Some individuals purchase animals from production areas as opposed to the designated market yards.
What is the bargaining power of livestock producers (sellers)	<ul style="list-style-type: none"> - Producers value their animals. They value size, body condition, and the history of that animal in the herd - They propose prices based on the, condition of the animal - No less about market information

and traders (buyers) in your local markets?	<ul style="list-style-type: none"> - For those who have traded livestock for long, animals of different conditions, they propose prices that they are used to regardless of the prices in the market - Proposed prices are largely negotiated till transaction is arrived at - Traders also inquire from other traders the prices they bought the animals with and the mark-up required. Bargaining made on the mark-up - In secondary markets, due to rivalry, animals from primary market traders and producers are not bargained but bought based on prevailing prices at the lowest
What is the bargaining power of the diversity of livestock products consumers accessing your local markets?	<ul style="list-style-type: none"> - Negotiating proposed prices is the main strategy used by traders and producers to arrive at the transaction prices - Traditionally, people negotiate and come to a settlement
What are the key substitutes and supplementary commodities to livestock products and their threats to livestock markets?	<ul style="list-style-type: none"> - Meat is a staple in the diets of pastoralist households. - Other groups in the region, such as the Bantus, favour poultry, eggs, fish, legumes, and cereals. In these locations. - Such cultures and preferences determine the purchasing and consumption of livestock and livestock products on the market.
What is the bargaining power and relationship of competitors in your local markets?	<ul style="list-style-type: none"> - The bargaining power of traders is contingent on the market in which they operate, their access to capital, and other markets. - Secondary Traders seek to dominate those who operate in markets at a lower level.

	<ul style="list-style-type: none"> - Those merchants who have strengthened their connections and relationships move livestock resources up the market value chain. - Some traders have demonstrated well-organized livestock trading practices. This is considered the correct course of action.
In your own view, how have these five market forces influenced the internal performance of your local markets?	<ul style="list-style-type: none"> - A strong market structure, particularly in the secondary markets of Lodwar, Kakuma, and Lokichar. - Effective market committees are established. - Developing and integrating bylaws and market regulations into livestock marketing and market management. - Arrangement of livestock market activities to ensure that every market participant operates smoothly. - Market days can help further organize market forces, such as demand and supply. - Reduce the impact of middlemen and brokers on the open market system. - The marketing of livestock and products to enable entrepreneurs to realize the worth of their investments.
How to regulate competitive rivalry in livestock markets	

<p>What should be done to have a well-regulated competition and competitive rivalry in livestock markets?</p>	<ul style="list-style-type: none"> - Community education regarding crucial aspects of livestock production and distribution. - Collaboration between stakeholders across market segments. - Demand and supply are clearly explained to market participants. - Rules and regulations to reduce competition. - Enhancing the capabilities of traders in their respective markets. - Increasing their knowledge and financial resources for competitive advantage - Enhancing connections, relationships, and communication between livestock dealers and livestock farmers. - Providing market information, such as prices - Only registered traders bound by market regulations may trade livestock. - Installed complaints and feedback in all markets - Diversification of businesses to reduce competition in the sale of live animals, a single type of livestock business.
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APPENDIX E: Tertiary study participants responses (government and CSOs)

Themes	Tertiary study participants responses
Livestock production situation in Turkana, Kenya	<ul style="list-style-type: none"> - Turkana County is the largest pastoral region in Kenya, and the poorest in the country - It is a home to a variety of livestock species - The county is situated in the Rift Valley Province of Kenya, with Uganda, South Sudan, and Ethiopia to the west, north, and northeast, respectively. - Livestock husbandry is the primary production system, an economic pillar, and a significant source of income for livestock keepers. - Livestock is used in the payment of bride prices, fines, gifts, and cash saved by livestock keepers as livestock - Low capacity to enhance livestock production to commercial level - Livestock production is hindered by climate variability, urbanization, limited livelihood activities, commerce and trade - The local government aims to make livestock economy in Turkana significant and dependable to the population - Pastoralism, agro-pastoralism, fishing, and urban residents are the four primary production systems in Turkana County. - Limited technological advancements. - Kenya's dryland people who depend on the livestock sector and subsector haven't been able to make the social and economic changes they want.
The state of the Turkana pastoral economy	<ul style="list-style-type: none"> - Pastoralists in Turkana place a high value on their livestock - Each livestock resource is utilized primarily for sustenance and prestige, with sales occurring only in times of emergency or to meet essential household needs.

	<ul style="list-style-type: none"> - Low functionality of livestock markets in Turkana due to lack of systems of trade - Extreme competition is wreaking havoc on regional livestock trade and stakeholder relationships. - The limited motivation of pastors to engage in livestock trade - Policy restrictions on livestock transportation and trading and quarantines imposed by government - The poverty rate in Kenya's pastoral areas is increasing - Inseparable relationship between pastoralists and their livestock. It is their philosophy. - Market access is still limited in the pastoral region due to disanablers and schallenges - A corporate strategy for livestock development in pastoral areas is and promote corporate strategy determination.
Research outcomes and change management in pastoral areas	<ul style="list-style-type: none"> - ILRI, FAO, WFP, USAID, EU, and National and County government departments had conducted several studies on matters of livestock production - Limited organization of livestock marketing systems; duplication of livestock enterprises in areas with low per capita livestock production; poor market communication and information-sharing networks; and a lack of justifiable livestock price discovery mechanisms. - The marketing of livestock in rural areas appears disorganized. - Capacity development of livestock stakeholders is highly necessary - Resource-based conflicts is one of the overriding challenges of livestock production and trade in pastoral areas

	<ul style="list-style-type: none"> - Exploitation of livestock producers and low-level traders is evident in local markets - Livestock value chains have not been developed to commercial levels - Many livestock traders do almost the same form of business i.e. buying and selling of live animals - Competition and rivalry characterize livestock marketing in Turkana and similar dryland contexts. - There is an imbalance between supply and demand forces in the market - Sustainability of livestock business is still a challenge in the county
Agribusiness development in pastoral areas	<ul style="list-style-type: none"> - Livestock marketing systems are still expanding, particularly in Africa. - Pastoralists, traders, vendors, and product consumers may benefit from livestock business opportunities if urbanization and the high demand for effective livestock marketing systems continue - Livestock markets in Turkana are owned by traders - The inability to recognize livestock farmers as the primary source of livestock supply dampens their enthusiasm for livestock keeping and marketing. - Livestock based interventions in Turkana consist of rangeland rehabilitation, water development utilizing multiple technologies, destocking and restocking, annual veterinary and public health programs, and hardware and software livestock marketing interventions. - Pastoral livestock production is unconcerned with the commercial potential of livestock, which would benefit pastoralists' cash economy.

	<ul style="list-style-type: none"> - The transformation of livestock marketing is essential to the strengthening of strategies to wempower livestock development - There are fewer initiatives and programs aimed at the training and capacity development of pastoralists and traders. - To improve the performance of livestock livestock business organizations, traders need to be motivated, low levels of passion need to be managed, and institutional foundations need to be strengthened.
Historical impediments to the livestock trade in Turkana	<ul style="list-style-type: none"> - Laws and regulations imposed on dry lands limit competitive abilities of the local livestock economies - Drought cause a catastrophic decline in livestock and pastoralists production viability - Pastoralists are overlying on livestock for livelihoods - Depletion of natural resources caused by the concentration of large numbers of animals and pastoralists in pasture and water-potential areas. - Marginalization of pastoral areas and communities affects their integration into national economy - Rising human and livestock populations will exceed natural resource limitations and per capita gains. - Limited institutional capacity contributes to inadequate livestock market management. - Limited cash savings and fewer finatial institutions and literacy hinder financial security of local communities - Limited scientifically developed and empirically validated concepts regarding livestock production and marketing in pastoral areas.

	<ul style="list-style-type: none"> - National government seem to be giving low priority to pastoral areas but county government through devolved functions such as agriculture are reviving the attention on livestock development - Despite production challenges, Turkana is viewed unique environment for raising healthy livestock resources - Limited usage of published resource materials.
Competition in livestock markets	<ul style="list-style-type: none"> - Competition is as a driving force in the production and marketing of livestock products - Cross-border trade has changed from a small part of livestock production to an entrepreneurial business that helps the local economies of regions - Due to the viability of cross-border trade, livestock trading is a source of food, income, nutrition security, alleviation of poverty, and capital for business diversification and socioeconomic development. - Livestock trade is disorganized in most parts of dry lands - Significant increase in trade volumes, particularly in the corridors of the livestock trade between Kenya, Ethiopia, and Somalia is noticed. - Due to the region's insufficient livestock production and trading infrastructure, livestock sales are low. - South Sudan, which has long been a potential livestock-producing country, is plagued by recurring hostilities, livestock disease, and regulated livestock movements. - In Eastern Africa, cross-border trade in livestock is expanding. - Lack of services and poorly managed border ports for official export are undermining livestock trade

	<ul style="list-style-type: none"> - Unofficial cross-border trading and the transport of animals across borders increase the competitiveness of traders - Civil society through community projects have addressed to some significant degree problems of livestock production - Barter trade is still in use - Even though there are no rules about cross-border trade, it brings in money for the government and helps communities and traders who depend on livestock to get out of poverty.
Competitive capacities of livestock buyers and sellers	<ul style="list-style-type: none"> - The purchasing power and market share ambitions of buyers and sellers increase competition and rivalry in all markets. - Due to the procurement of animal resources for future and spot markets, the climate of the livestock industry is also changing. - Small-scale traders collect livestock over a long period of time before they can supply the target market. - Capital inefficiency hinders the capacity of traders to serve markets and meet consumer needs. - Increased competition inhibits the expansion of small trader associations into larger businesses. - In Turkana, the capacity of local traders to manage risks associated with livestock trading is insufficient. - Business connections within and across the borders are beneficial for Turkana - Market dynamics are enormous making some traders drop from livestock business activities. - Market transfer costs are high for the majority of livestock traders in Turkana and many pastoral areas. - Market access barriers cause competition in domestic and international livestock markets

	<ul style="list-style-type: none"> - Good business environment is essential for making local traders thrive in livestock trade activities.
Rivalry among existing livestock marketing competitors	<ul style="list-style-type: none"> - The influence of market and non-market forces on markets intensifies competition between business competitors - Numerous local and international markets are characterized by fierce competition. - The trading of similar livestock species and livestock products in markets heightens competition among traders. - Livestock traders in the drylands of Eastern Africa are not maximizing the potential of their livestock operations, particularly in catchment areas. - Lack of operational capital, high transportation costs, and restricted access to profitable livestock markets. - Regional markets are characterized by intense competition, which is exacerbated by business affiliations, the size of business enterprises, and the influence of opinions regarding animals produced in different regions and countries. - The structure of livestock marketing system is influenced by changes in the scale of livestock production; varying economies of scale; low unit production costs; changes in marketing needs and costs; and changes in policy and marketplace organization and management. - Some traders especially those operating in urban areas have started diversifying their businesses. - Comprehensive livestock marketing frameworks can allow large-scale livestock farmers and low-cost producers to increase their market share

	<ul style="list-style-type: none"> - Small livestock traders in Turkana continue to lose market share due to low capital resources, lack of transport facilities. - Competition and competitiveness of few of livestock traders in Turkana is leading to transformative changes anticipated over a long period of time.
Determinants of competition and rivalry in livestock markets	<ul style="list-style-type: none"> - The livestock market economy in Turkana has exhibited a monopoly - Local traders who also Raise livestock continue to rely on traditional marketing strategies, such as bartering - Artificial insemination (AI) services have never been done in Turkana - The demand for high-quality livestock and livestock products is improving due to increasing diversity in the area - New livestock breeds especially goat and poultry are being introduced in Turkana - The livestock breed improvement may take long to cause an impact on livestock body conditions and quantity of products - Civil society is taking part in livestock development initiatives and innovations - Trade restrictions is a disadvantage to local traders - A lack of opportunities to sell animals increases competition among larger businesses while exploiting small-scale traders.
The impact of competition and rivalry on livestock marketing	<ul style="list-style-type: none"> - Rivalry intensity shapes the competitive structure of industries - Unfair competition occurs when business rivals are not agreeing on a common market structure.

	<ul style="list-style-type: none"> - Companies adhering to the rules of regulated business competition will produce firms with a proportional share of competitive per capita revenue. - When there is a lot of competition in an industry, it tends to make it harder for existing businesses to make money - In rural areas, the number of competitors and their strategies for gaining market share are poorly managed. - The industry's high fixed costs contribute to the fierce competition in the livestock markets, where traders attempt to recoup production costs by selling livestock and livestock products. - Low brand loyalty and low customer switching costs exacerbate competitive rivalry in secondary markets. - Influential business groups become monopolistic and form oligopolistic business clusters with their rivals. - High exit barriers and the costs of expanding corporate operations, particularly in more difficult production regions such as Turkana - There is a greater possibility of establishing a clear market leader and achieving industry growth through coordinated livestock delivery systems. - Customer preferences when not addressed undermine customer satisfaction. - There is no excess production capacity in the animal products value chains. - Due to the lack of strategic diversity among competitors, markets become disorganized - Low competition makes an industry more attractive and boosts business revenue.
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	<ul style="list-style-type: none"> - High rivalry intensity, on the other hand, makes a sector less appealing to both competitors and customers, which makes it less likely to make money.
Influence of market and non-market forces on livestock marketing	<ul style="list-style-type: none"> - The livestock industry is fundamentally driven by links between supply and demand market forces - The factors influencing market outlets and demand due to purchasing power of traders and consumers. - Consumer reference shifts toward less popular livestock and livestock products - Consumer expectations are negatively impacted by inclusive innovations and the commercialization of smallholder value chains. - Some stakeholder perspectives depict consumer satisfaction and delight in the market. - Low organizational capacities and few policy guidelines result to a wide range of inaccurate predictions and insufficient enlightenment of livestock keepers. - There are not enough animals and livestock products on the market because production conditions and marketing plans are not good enough. - Inefficiency of markets and the deliberate exploitation of producers by trade cartels, market supply and demand interactions are unbalanced. - Significant demand-altering factors, such as labor migration, technological advancements, income growth, changes in consumer market behavior, and livestock trade networks, have a substantial impact on livestock markets. - Fluctuations in supply and demand on livestock markets in Turkana are likely to affect the consistency of production and income growth.

<p>The impact of non-market forces on competition in livestock markets</p>	<ul style="list-style-type: none"> - Kenya's agricultural sector is poorly integrated with global markets - The fragmentation of farmers undermines the policy and other agricultural regulatory frameworks initiated by the government. - Enhancing producer cooperation is necessary for collaborative business engagements. - Trade groups and inter-branch organizations unite the efforts of farmers to increase production and market gains. - To increase the effectiveness of competition in agricultural markets, the enforcement of transparency rules and procedures by market participants has become a crucial pillar. - The integration of data management and pricing of agricultural commodities into existing market information systems. - The efficacy of risk management instruments motivates the development of a comprehensive risk management strategy. - Written contracts make it possible for market participants to take an active role in business transactions. - The establishment of a more equitable link between producer pricing and the additional value generated in the livestock supply chain would benefit the market - Climate change and governance, as well as the need for environmental protection and other activities that make rural areas useful. - If the marketing strategy is included in the future agricultural policy mix, it will be possible to regulate and pay for goods delivered to markets.
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<p>Impact of Seasons on Livestock Production and Marketing</p>	<ul style="list-style-type: none"> - In Turkana, various locations served as livestock markets where people gathered to buy and sell necessities. - Market participants had to deal with a number of internal and external factors, including social, economic, and environmental ones. - In markets, client management, and regularization of organized marketing systems provide opportunities for year-round marketing activities, - Mergers and purchases are another way for livestock dealers and suppliers who want to grow their year-round businesses to do so. - The formation of companies/cooperatives for the purpose of selling livestock on behalf of producers or small-scale traders is a business leverage technique - The bottom line for livestock trade, particularly in arid regions, is the number of stocks delivered to markets based on established demand and reasonable price offers, regardless of whether livestock prices are low or high.
<p>The seasonality of livestock business operations</p>	<ul style="list-style-type: none"> - A strong livestock marketing strategy has a season-long scope and is capable of addressing factors that hinder livestock enterprises - People who want to sell livestock can make more money by coming up with good business ideas. - To generate substantial economic returns from markets, traders must focus on breeding and marketing strategies for high-value livestock. - Despite the fact that some livestock markets are profitable, substantial operating expenses erode revenue and capital.

	<ul style="list-style-type: none"> - When it comes to how profitable livestock marketing plans are that depend a lot on livestock sales, supply and demand scenarios. - Persistent decline in livestock numbers during the rainy seasons increases the expense of operating livestock-based businesses. - Farmers don't sell a lot of their livestock when it's rainy or when the market is busy. This causes supply imbalances. - A decline in auction markets; slow developments in livestock production and marketing. - Falling numbers of abattoirs, environmental policy concerns, improvements in technology and training, influence participation of stakeholders in the market. - Governments and private-sector organizations have demonstrated effective disease control through veterinary campaign programmes. - The government's regulatory role, which is shown by its policies and laws, helps the market economy and animal agriculture in a big way.
Strategies and Models Applied to the Livestock Industry	<ul style="list-style-type: none"> - Promotion of precision agriculture through a variety of agricultural methods and systems - Improved efficiency of animal labour - New ways to control livestock emissions include spraying nitrification inhibitors on pastures, feeding inhibitors to animals, coating fertilizer with inhibitors, and adjusting the ratio of energy to protein in the diets of ruminants. - Production interventions and strategies are implemented to increase livestock production in marginal areas.

	<ul style="list-style-type: none"> - The improvement of animal nutrition; farmer training; advisory services; livestock research advancements; and value-added marketing. - The government's regulatory role gives a big boost to animal agriculture and the growth of the market economy through its policies and laws.
Livestock Production and Marketing Legislation and Frameworks	<ul style="list-style-type: none"> - Kenya Meat Commission Act, Cap 358 of the Laws of Kenya of 1950 - Kenya Dairy Board (KDB) was established in 1958 by an act of parliament (Cap 336 of the Laws of Kenya) - Kenya Tsetse and Trypanosomiasis Eradication Council (KENTTEC) of 2012 - The Kenya Animal Genetic Resource Centre (KAGRC) of September 5, 2011 by legal notice No. 110 - Kenya Veterinary Vaccines Production Institute (KEVEVAPI) was established by legal notice No. 220 on 4 June 1990 - Kenya Veterinary Surgeons and Veterinary Paraprofessionals Act, Cap. 336 of 2011, - The Meat Control Act (Cap 356), - the Pig Industry Act (Cap 361), - the Animal Diseases Act (Cap 364), - the Livestock Cleansing Act (Cap 358), and - Rabies Control Act (Cap 365) - Kenya Livestock Marketing Council (KLMC) of 2000 - Livestock Marketing Associations (LMAs) of 2002
Successes and Challenges of Livestock-based Policy	<ul style="list-style-type: none"> - Non-prioritization of lucrative livestock development and business interventions - Fewer programmes for livestock development in dry lands - Inadequate policy areas and action - Political interference with pastoral development agenda

	<ul style="list-style-type: none">- Marginalization of pastoral areas through the notion of unproductiveness- Conflicts (Resource based conflicts)- Poor funding and resource allocation- Alignment of livestock development strategies with the needs of the economy- Strengthening partnerships for effective implementation of livestock policy
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APPENDIX F: Questionnaire (Semi-structured) for secondary traders

PART ONE: RESEARCH QUESTIONNAIRE *(For secondary respondents)*

Demographic characteristics of respondents

Personal/General Information Data (Qn 1-10) for both literate and non-literate applies to any category of study participants.

Please help to tick the most appropriate and fill in the blank spaces where applicable.

1. Age of the respondent-----

2. Gender

(a) Male (b) Female (c) Other

3. Level of education

(a) Non-literate (b) Adult Education (b) Certificate (d) Diploma (e) Bachelors (f) Masters
(g) Doctorate

4. Number of years in the Livestock Marketing Organization-----

5. Name of Sub County-----Location-----

6. Name of Sub location -----

7. Name of Village-----

8. Name of association-----Rank-----

9. Occupation -----

10. Other duties performed in the community

Instruction: In all the tables, use the Likert scale below to score the participant's responses.

Directions

Rating	Respondents mode	Description	Interpretation
1	Strongly disagree	You disagree with no doubt at all	Very poor
2	disagree	You disagree with some doubt	Unsatisfactory
3	Neutral	Neither agree nor disagree	Fair
4	Agree	You agree with some doubt	Satisfactory
5	Strongly agree	You agree with no doubt at all	Very satisfactory

Theme 1: Traders competitiveness in markets

		Rating				
		(1) Strongly disagree e	(2) disagree	(3) Neutral	(4) Agree e	(5) Strongly agree
1.1	I believe livestock production in my locality is objective and progressive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.2	Livestock factors of production are enormous and viable in my locality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.3	The current livestock production and marketing impediments retard livestock industry growth in my area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.4	The scope and size of livestock marketing in my locality is large	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.5	Livestock production and marketing in the context of my area are strongly linked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1.6	Livestock markets have benefitted producers, traders, and products consumers in equal measure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.7	The concerned stakeholders are addressing livestock production and marketing challenges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.8	Value addition is a factor considered important for better livestock productivity in my area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.9	The current livestock marketing systems are efficient, competitive, and sustainable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.10	Research is intensely used as a basis for promoting livestock production and marketing as well as addressing inherent challenges in my area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide more information on the following statements

Select from the options below the Livestock production systems practiced in your area

Intensive (b) Semi-intensive (c) Extensive (d) Others

If you chose 'others' list and/or explain below

Select from the options below types of livestock markets in your area

Traditional (b) Primary (c) Secondary (d) tertiary market (d) Others

If you chose 'others' list and explain below

Select from the options below how livestock markets have benefitted producers, traders, and product consumers in your area

Enlarging stock (b) Reducing stock (c) Money from sales (d) Meat products (e) Others

If you chose 'others' list and/or explain below

Select from the options below how markets operating in your area have harmed producers, potential traders, and products consumers

Rivalry (b) Social capital divisions (c) High prices (d) Niches (e) Losses (f) Others

If you chose 'others' list, and explain below

What recommendations/actions do you think can improve livestock production and marketing in your locality?

Theme 2: *Competition and rivalry*

		Rating				
		(1) Strongly disagree	(2) disagree	(3) Neutral	(4) Agree	(5) Strongl y agree
2.1	Livestock traders relate well with livestock producers at catchment areas and markets	O	O	O	O	O
2.2	Livestock traders operating in different market categories in my area exhibit good relationships among themselves	O	O	O	O	O
2.3	Competition in livestock markets in my locality is beneficial to individuals and the livestock sub sector	O	O	O	O	O
2.4	Competitive rivalry is evident in livestock markets that I know	O	O	O	O	O

2.5	Competitive rivalry is affecting the performance of livestock markets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.6	Traders instigate competitive rivalry for their benefit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.7	Livestock producers are disadvantaged by current competition and rivalry in markets found in my area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.8	There is a system in place to regulate competition in markets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.9	The market is strong as a result of competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.10	Competition is reducing prices and increases diversity of livestock value chains supplied to markets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide more information on the following statements

Select benefits of competition evident in livestock markets operational in your area

Upgrading (b) Value addition (c) More options for customers (d) Productivity (e) Focus on sales and customers (f) Others

If you chose 'others' list and explain below

Select actions were taken by stakeholders to limit competitive rivalry in livestock markets, you know

Market organizations (b) Market efficiency (c) Supply vs. Demand balance (d)
Regulation (e) Penalties (f) Others

If you chose 'others' list, and explain below

Propose recommendations/actions that need to be implemented to regulate traders competition in markets in your locality

Theme 3: *Supply and Demand relations*

		Rating				
		(1) Strongly disagree	(2) disagree	(3) Neutral	(4) Agree	(5) Strongly agree
3.1	Livestock supply to markets meets the existing demand	O	O	O	O	O
3.2	There is balance between supply and demand in markets	O	O	O	O	O
3.3	Imbalance in market forces disadvantages markets and stakeholders involved (<i>if any</i>)	O	O	O	O	O
3.4	Livestock Marketing Associations (LMAs) are responsible for the	O	O	O	O	O

	imbalance between market forces <i>(if any)</i>					
3.5	Interaction of market and non-market forces is well regulated	O	O	O	O	O
3.6	The outcome of supply and demand in markets retards production at catchment levels	O	O	O	O	O
3.7	Season-long livestock marketing is exercised in my locality	O	O	O	O	O
3.8	Livestock producers have realized value for their livestock resources supplied to the market	O	O	O	O	O
3.9	Traders have sustained and diversified their investments through a livestock marketing initiative	O	O	O	O	O
3.10	Prices of livestock and livestock products are	O	O	O	O	O

	consistent and affordable throughout the year					
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Table 4: *Theory and livestock production and marketing*

		Rating				
		(1) Strongly disagree	(2) disagree	(3) Neutral	(4) Agree	(5) Strongly agree
4.1	Healthy competition is evident in livestock markets in my locality	O	O	O	O	O
4.2	Competitive rivalry is real in my local livestock markets	O	O	O	O	O
4.3	Livestock producers have good bargaining power in their markets	O	O	O	O	O
4.4	Livestock products consumers have a good bargaining power for product value chains supplied to markets	O	O	O	O	O

4.5	New entrants, i.e., traders and their products, increase competition and rivalry in local markets	O	O	O	O	O
4.6	Different traders regard each other as competitors, not rivals	O	O	O	O	O
4.7	The flow of livestock from catchment areas, primary, secondary, and tertiary markets is perfect	O	O	O	O	O
4.8	Competition is improving livestock innovation and market enterprise development in the area	O	O	O	O	O
4.9	Corporate theories are applied in livestock marketing systems in the markets I operate in	O	O	O	O	O
4.10	Formulated livestock marketing strategies are working	O	O	O	O	O

APPENDIX G: Study Schedule (for primary traders/primary markets)

For primary respondents – itinerary and primary traders - Individuals and Focus Groups)

Please help to tick the most appropriate and fill in the blank spaces where applicable.

Demographic characteristics of respondents

Personal / General Information Data (Qn 1-10) for both literate and non-literate applies to any category of study participants.

1. Age of the respondent-----

2. Gender

(a) Male (b) Female (c) Other

3. Level of education

(a) Illiterate (b) Adult Education (b) Certificate (d) Diploma

(e) Bachelors (f) Masters (g) Doctorate

4. Number of years in the Livestock Marketing Organization-----

5. Name of Sub County-----Location-----

6. Name of Sublocation -----

7. Name of Village-----

8. Name of association-----Rank-----

9. Occupation -----

10. Other duties performed in the community

Open-ended questions

Theme	Questions
Traders competitiveness in markets	<ul style="list-style-type: none"> - Explain in general terms the context of livestock production in your locality and Turkana County at large? - What are critical success factors promoting livestock production and industry in your locality and region? - What factors inhibit livestock development and industry in your locality? - Explain the scope and size of livestock marketing in your area and Turkana County at Large? - How do you link livestock production to local livestock markets operational in your area? - How have livestock markets benefited livestock producers and traders? - What challenges affect the performance of livestock markets in your area? - What actions do you think are essential for promoting livestock production and marketing in your area and Turkana County?
Competition and competitive rivalry	<ul style="list-style-type: none"> - In your view, how do livestock traders relate with livestock producers in markets? - What is the relationship between livestock traders operating in different livestock market categories in your locality? - How has competition among livestock traders benefitted and or negatively affected livestock trading among them?

	<ul style="list-style-type: none"> - Do you see any elements of competitive rivalry in your local livestock markets, and what is the impact on livestock producers, traders, and consumers? - In your view, what causes competitive rivalry in livestock markets, you know? - What do you think needs to be done to minimize rivalry in livestock markets and enhance healthy competition in markets?
Supply and Demand relations	<ul style="list-style-type: none"> - What is the relationship between livestock and product demand and supply in your locality and other areas in Turkana County you may know? - In what ways do these market forces disadvantage livestock producers and traders in your locality - Is there any form of imbalance you see in the demand and supply of livestock resources in your locality, and how does it affect you and households in your area? - If an imbalance between supply and demand exists in your locality, is there any way livestock traders have participated in promoting it? - In your view, how should livestock/product supply and demand be regulated in the context of your local markets? - What needs to be done in local markets to avoid the adverse effects of supply and demand imbalance?
Theory and Livestock industry	<ul style="list-style-type: none"> - At what level are competition and rivalry evident at the heart of your local market(s)? - Which threats do new entrants to your local markets pose? - What is the bargaining power of livestock producers (sellers) and traders (buyers) in your local markets? - What is the bargaining power of the diversity of livestock products consumers accessing your local markets?

	<ul style="list-style-type: none">- What are the key substitutes and supplementary commodities to livestock products and their threats to livestock markets?- What is the bargaining power and relationship of competitors in your local markets?- In your own view, how have these five market forces influenced the internal performance of your local markets?- Which marketing mix elements are applied in livestock marketing in the context of Turkana County?- What do you think needs to be done to regulate competition between traders and their product consumers in markets concerning new entrants, their bargaining power, and the threat of substitutes?
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APPENDIX H: Study schedule (for tertiary respondents)

For tertiary respondents – Policy related questions)

Please help to tick the most appropriate and fill in the blank spaces where applicable.

Demographic characteristics of respondents

Personal / General Information Data (Qn 1-10) for both literate and non-literate applies to any category of study participants.

1. Age of the respondent-----

2. Gender

(a) Male (b) Female (c) Other

3. Level of education

(a) Illiterate (b) Adult Education (b) Certificate (d) Diploma

(e) Bachelors (f) Masters (g) Doctorate

4. Number of years in the Livestock Marketing Organization-----

5. Name of Sub County-----Location-----

6. Name of Sublocation -----

7. Name of Village-----

8. Name of association-----Rank-----

9. Occupation -----

10. Other duties performed in the community

<i>Themes</i>	<i>Tertiary study questions</i>
Livestock production situation in Turkana, Kenya	<ul style="list-style-type: none"> - What is the situation and context of livestock production in Turkana? - What is the population of livestock and its significance to the wellbeing of livestock dependent populations? - What is the state of factors of production for different livestock species? - What frameworks are in place for the management livestock developments in Turkana? - What production opportunities that exist for utilization by governments, livestock keeping communities and marchants to grow pastoralists economy?
The state of the Turkana pastoral economy	<ul style="list-style-type: none"> - What is the development agenda is being enhanced by livestock initiatives in Turkana? - How is the County Integrated Development Plan (CIDP) and other development frameworks helping to nurture pastoral economy of Turkana? - What socio and economic investments have been installed to support livestock keeping communities and merchants to grow livestock sector and sustain consumer market? - What challenges and opportunities exist to leverage and sustain the economy of the pastoral economy of Turkana?
Research outcomes and change management in pastoral areas	<ul style="list-style-type: none"> - Which organizations are taking a leading role in research and development in pastoral areas? - Which areas of interest to pastoral economy and livestock keeping populations have been researched on? - What knowledge is already available that you are using to support livestock development agenda in Turkana? - Which potential areas of the pastoral economy that have not been well research and the essential knowledge is missing?

	<ul style="list-style-type: none"> - What changes have been enhanced by knowledge generated from research projects? - What is the level of livestock stakeholders transformation that is observable and impacting the economy of the area? - What decisions have been taken by government and civil society regarding livestock production and trade that are a result of well established knowledge foundations? - How has research research and development investments improved the livestock marketing infrastructure and functionality of livestock markets in Turkana?
Agribusiness development in pastoral areas	<ul style="list-style-type: none"> - Define the scope of agribusiness in Turkana in relation to other areas of the world? What is peculiar? - How is agribusiness concept integrated into livestock development in Turkana? - What modalities are used to inculcate agribusiness to essential components of livestock production and marketing in pastoral areas? - What agribusiness projects have been implemented in Turkana and what is the outcome? - What policy areas permeate the development of agribusiness in pastoral areas?
Rivalry among existing livestock marketing competitors	<ul style="list-style-type: none"> - Is competition an element of livestock markets in Turkana? How is it done? - Is competitive rivalry exercised in livestock markets in Turkana? - What is the impetus for rivalry in livestock markets? - Who does rivalry and for what reasons? - How has competitive rivalry influenced livestock marketing in the county? - How are stakeholders dealing with rivalry in markets?

Influence of market and non-market forces on livestock marketing	<ul style="list-style-type: none"> - What is the relationship between market forces i.e., supply and demand in livestock markets in Turkana and other pastoral regions? - Which non market forces are of great interest to livestock marketing and entrepreneurship in Turkana? - How are livestock markets managing both market and non market forces in the county and other potential markets within and cross border? - What challenges have been endured by local livestock markets, producers and traders regarding market forces? - What is the government and civil society plan to regularize livestock marketing activities in Turkana? - How the government and partners helping the development of livestock markets and consumption outlets in Turkana?
Strategies and Models Applied to the Livestock Industry	<ul style="list-style-type: none"> - Which business models are used to support livestock trade in Turkana? - What is the efficacy of such business models? Are they global? - What change has been recorded in the livestock sector in Turkana as a result of strategies and models applied? - What challenges are hindering the maximization of such business models? - What opportunities exist to improve the livestock sector in Turkana through modelling?
Livestock Production and Marketing Legislation and Frameworks	<ul style="list-style-type: none"> - Which national legislations, policies and regulations are applied in livestock development in Turkana? - What impact have such legislations had on livestock development in Turkana? - Have legislation and regulations on livestock production and marketing been meaningful to Turkana? Why?

	<ul style="list-style-type: none"> - What challenges are encountered when implementing government policies in the county?
Successes and Challenges of Livestock-based Policy	<ul style="list-style-type: none"> - What policy gaps and challenges that the County prioritize for action to develop further the livestock sector? - Is innovation considered when designing and implementing livestock based policies and projects? - What recommendations and actions are crucial to use policy as a foundation of developing livestock sector in Turkana? - What livestock development case studies do you refer to in the process of support livestock development agenda in the county? - How is Corporate Social Responsibility (CSR) policy applied in livestock development?

APPENDIX I: Research participants Informed Consent Form



UU_IC - Version 2.0

Informed Consent Form

Part 2: Certificate of Consent

Student's Name: Francis Anno Ekiru

Student's E-mail Address: annofrancis@gmail.com

Student ID #: R1706D2907455

Supervisor's Name: Dr. Elenica Pjero

University Campus: Unicaf University (UUM)

Program of Study: Ph.D – Doctorate of Philosophy – Marketing Management

Research Project Title: 'Effects of Traders Competitive Rivalry on Livestock Market Access in Pastoral Areas, A Case of Turkana County of Kenya'

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation to this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name:

Participant's Signature: _____

Date:

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Signature: _____

Date:

APPENDIX J: Provisional UREC Approval



UREC's Decision

Name of Participant:

Francis Anno Ekiru

Title of the Research project:

'Effects of Traders Competitive Rivalry on Livestock Market Access in Pastoral Areas, A Case of Turkana County of Kenya'

Date:

05.02.2019

Comments



Approved without revision or comments.



Approved with comments for minor revision.



Not approved with guidance comments for moderate revision and resubmission.



Not approved with guidance comments for major revision and resubmission.

The UREC committee approves this research ethics proposal without revision or comments.

APPENDIX K: Final UREC Approval

UREC's Decision

Student's Name: Francis Anno Ekiru

Student's ID #: R1706D2907455

Supervisor's Name: Dr Elenica Pjero

Program of Study: UUM: PhD Doctorate of Philosophy - Marketing Management

Offer ID /Group ID: O17034G16274

Dissertation Stage: 3

Research Project Title: Effects of Traders Competitive Rivalry on Livestock Market Access in
Pastoral
Areas: A Case of Turkana County of Kenya

Comments:

Decision: A. Approved without revision or comments

Date: 16-Jul-2020

APPENDIX L: Research Approval by the County Government of Turkana - CDLP



REPUBLIC OF KENYA



**TURKANA COUNTY GOVERNMENT
MINISTRY OF AGRICULTURE, PASTORAL ECONOMY AND FISHERIES
OFFICE OF THE COUNTY DIRECTOR OF LIVESTOCK PRODUCTION**

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Ref. No. TCG/LPD/RESEARCH/VOL.3/35

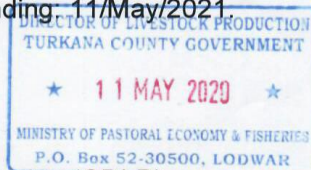
11TH MAY, 2020.

RE: RESEARCH STUDY APPROVAL.






This is to certify that the Directorate of Livestock Production of the Turkana County Government – Ministry of Agriculture, Pastoral Economy and Fisheries (MoAPEF) in Kenya, has approved the request by Mr. Francis Anno Ekiro of Unicaf University to conduct a Doctorate of Philosophy - PhD research study in Turkana on the topic "Effects of Traders Competitive Rivalry on Livestock Market Access in Pastoral Areas: A case of Turkana County of Kenya" for the period ending 11/May/2021.

B. E. Lotiang

Mr. Bobby E.E Lotiang,
County Director of Livestock Production (CDLP),
Ministry of Agriculture, Pastoral Economy and Fisheries (MoAPE&F),
Turkana County Government
Republic of Kenya.



APPENDIX M: Research Approval by NACOSTI - KENYA

 <p>REPUBLIC OF KENYA</p>	 <p>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION</p>
<p>Ref No: 149242</p>	<p>Date of Issue: 22/June/2021</p>
<p align="center">RESEARCH LICENSE</p>	
	
<p>This is to Certify that Mr. Francis Anno Ekiru of UNICAF, has been licensed to conduct research in Turkana on the topic: Effects of Traders Competitive Rivalry on Livestock Market Access in Pastoral Areas: A case of Turkana County of Kenya for the period ending : 22/June/2022.</p>	
<p>License No: NACOSTI/P/21/11421</p>	<p align="right">  Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION </p>
<p align="center">Applicant Identification Number</p>	<p align="center">Verification QR Code</p>
<p>NOTE: This is a computer generated License. To verify the authenticity of this document,</p>	
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